



# Collective Action, Credit and Cooperatives for Rural Management

First Edition



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# About the Book

Microfinance has recently emerged as an independent branch of study, industry, development strategy and revolution. The purpose of this book is to familiarize students with the content and latest developments in the field of microfinance in Rural Credit. The book promises to be of interest to management practitioners, administrators, managers as well as in the banking, finance, micro-credit and rural credit sectors. The book is knowledge based, industry experienced based, teaching experienced based and research based.

Cooperation dates back as far as human beings have been organizing for mutual benefits. Tribes were organized as cooperative structures, allocating jobs and resources among each other, only trading with the external communities. Cooperatives frequently have social goals which they aim to accomplish by investing a proportion of trading profits back into their communities. Since 2002 cooperatives and credit unions could be distinguished on the Internet by use of a cooperative domain. Since 2014, following International Cooperative Alliance's introduction of the Cooperative Marque, ICA cooperatives and WOCCU credit unions can also be identified by a coop ethical consumerism label. This book will provide an effective learning experience and referenced resource for cooperative in the management perspective caring for Cooperative society governance, values, principles, and exclusively perspective on rural insurance and financing. Procedural orientation and practical discussion were included to enable the students to understand real world of cooperatives system in India and around the world.

A country's economic growth or development depends on its' trade activities which in turn depends on commodities. Commodities touch every individual of a nation either as a producer or as a consumer. Thus, commodity market is gaining importance day by day. Though Commodity market is an age-old market across the world, still it suffers from lack of rural participation in developing countries like India. Despite the wording of our Father of the Nation, Mahatma Gandhi that "India lives in villages" and India being one of the leading producers of many agricultural and allied commodities in the world, its rural population are not getting proper returns for their yield. This can be overcome by effective participation in the commodity market. Over the past decade, upon the recommendations of various committees, the Government of India is taking measures to encourage rural population to participate in the technology driven commodity market. But, the complicated procedures, cumbersome process of trading and lack of knowledge on market trading discourages the rural population to stay away from the exchange traded commodity market, thereby suffering from price risk. Thus, this book is designed to give a complete knowledge about the commodity market, its terminologies, structure and working both in terms of conceptual and empirical in rural context.

The book is divided into 3 blocks with 5 chapters in each to give the reader a wide understanding about the concepts. The first block deals with Microfinance, second block deals with Management of Cooperatives and block 3 deals with Commodity Markets Prices and Derivatives.

This book represents the collective efforts of so many remarkable individuals. We would like to thank the contributors to this volume for their collective wisdom, experience and insight. We would like to thank our Subject authors: Dr Sridhar L S, Assistant Professor, St. Joseph's College of Commerce, Bangalore; Dr Kirithiga, Assistant Professor, Lakshmi College of Arts and Science, Chennai. We would like to thank Dr Mahalakshmi. S, Assistant Professor, Department of Commerce, Central University of Tamilnadu, Thiruvarur for reviewing the course material on "Commodity Markets Pricing and Derivatives.

We would like to thank MGNCRE Team Members for extending extreme support in completing this book.

**Dr W G Prasanna Kumar**  
**Chairman, MGNCRE**

# Block 1

## **RF 1 Micro Finance Management**

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**Mahatma Gandhi National Council of Rural Education**

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# Chapter 1

## Introduction to Rural Financial System

### Introduction

The accessibility of value monetary administrations in provincial zones is critical for the development of the economy as this will empower the huge number of country family units to support the development of their jobs. The development of the economy is subject to the development of the provincial market in the nation. In this way more noteworthy money related incorporation in these portions is basic. Country fund is tied in with giving budgetary administrations – secure investment funds, credit, cash exchange and protection in provincial zones. For sure, money related administrations can assume a vital job in provincial advancement. Reserve funds and protection plans help the country populace in decreasing weakness to dangers, arranging all the more dependably for the future and putting something aside to up and coming ventures, just as smoothing out unpredictable salary streams and covering surprising costs. The last is especially vital in provincial regions where salary relies upon agrarian cycles. Advances for speculations and working capital are significant components that empower country business people to influence ventures, to seize financial chances, and buy rural data sources and working capital. Transient utilization or crisis advances can assist family units with avoiding troublesome circumstances that may have constrained them to move a benefit. In any case, advances are not constantly ideal some poor borrowers experience challenges in reimbursing their obligations, due either to conditions outside their ability to control (for example disorder, burglary, cataclysmic events) or to an absence of learning and wrong speculation methodologies.

Cash exchange administrations make it feasible for individuals who leave rustic regions to work in urban areas or abroad to send home their settlements securely and at sensible expenses. Notwithstanding encouraging rustic improvement, country fund is progressively utilized as a motivating force to advance practical utilization of regular assets, utilization of elective energies, and naturally stable conduct. As of late, a few banks and microfinance establishments have endeavored to accomplish monetary and social, yet additionally natural maintainability, which has been named the "triple primary concern".

Microfinance has been hailed as one of the most effective tools to combat poverty through loans, grants, insurance and other financial products offered to the world's poorest of the world's poorest. As an international development strategy, it represents a major shift from government "top-down" to private "bottom-up" approaches, and has revolutionized the approach to poverty alleviation and economic development. It also continues to be a model of social entrepreneurship, bringing creative business and financial strategies and tools to complex social and economic problems, as well as a wedge for empowering women and other disadvantaged citizens in some societies.

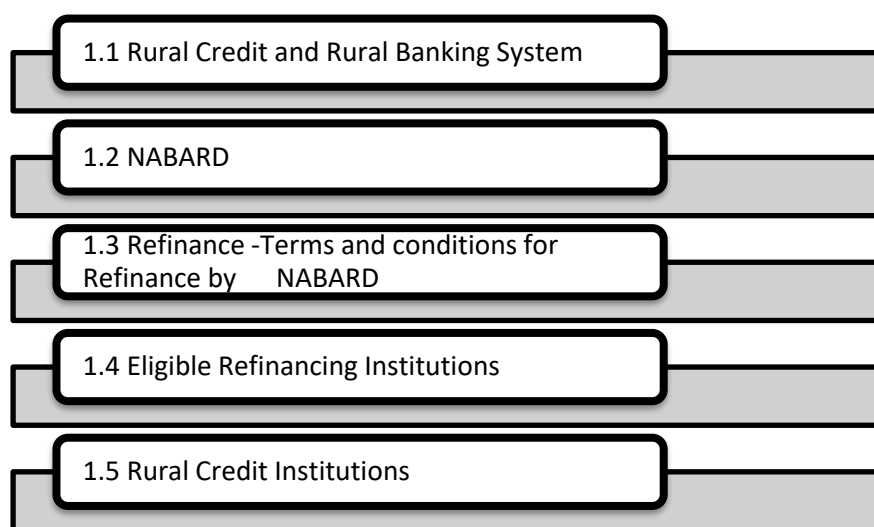
Microfinance is universally recognized as a just and sustainable solution to alleviate universal widespread poverty by financing poor people for viable and productive activities and projects, thereby generating economic surpluses and thus encouraging small investment savings. The poor need minimum financial services. They need to open a saving bank account in the bank to maintain and multiply their small savings by carrying out productive activities and getting small loans from

banks to buy the assets and increase the level of their activities. To cover life and activities risks, they require micro-insurance facilities.

## Objectives

This chapter will enable you to develop an understanding of the following.

- Meaning of Rural Financial System
- Components of Rural Financial System
- Rural Credit and Role of Banking System
- Role and Functions of NABARD
- Refinance



### 1.1 Rural Credit and Role of Banking System

During The 1950s, a system of provincial credit cooperatives was made. Right now, they were not business ventures like banks, but instead diverted credit between the state and the general population's collectives in provincial regions. In the late 1970s, after financial changes empowered some individual entrepreneurialism and the production of aggregate endeavors, the RCCs started to work as grassroots banks that gave credit and investment accounts to families and aggregate ventures. Individual and undertakings frequently swing to different wellsprings of credit, which run from pivoting investment funds and credit relationship to pawn shops. In any case, these different structures are altogether illicit (albeit some are endured to a more noteworthy degree than others, and are endured in a few areas more than in others). Business banks are legitimate, yet since short of what one percent of advances from state banks go to private business visionaries, they don't meet the credit needs of provincial territories.

#### Need for Institutional Source

The rancher is of provincial cause. He is unskilled and blameless. He requires satisfactory and prompt account; might be the rate of intrigue high. He is fairly pulled in by cash moneylenders, land rulers, commission operators and so on, who advance prompt fund with no confinements. Be that as it may, after that they play underhanded moves what's more, messy strategies. The cash loan specialists charge high rates of intrigue; their estimations are off base. The commission operators constrain the agriculturists to move their produce at low costs. They charge substantial commission.

Land rulers additionally charge have rates of intrigue. The land rulers possess the terrains of ranchers on the off chance that they try not to reimburse their obligations. There is additionally plausibility of getting to be inhabitants and grouped slaves. Every one of these inconveniences show up in the instance of non-institutional sources.

The institutional monetary sources resemble Co-operative Societies, Nationalized Banks, Land Development Banks, Regional Rustic Banks, Government and so on., are from composed part. They have more preferences. Institutional sources advance adequate credits for brief period, center period and significant lots. The rate of enthusiasm for additionally exceptionally low. The rancher feels security to his land. There one no acts of neglect. There are great opportunities to time corrections regarding credit arrangements of the administration.

Consequently, it is better for the agriculturist to despise to the institutional wellspring of account as it depends on protected arrangements. The credit prerequisites of Indian agriculturist are met by numerous offices. They comprise cash loan specialists, exchanges, commission operators, land masters, relatives, government, business banks, and cooperatives and so on. They are arranged into 1. Non-institutional sources and 2. Institutional sources.

### **Non-Institutional Sources**

#### **a) Money Lenders**

Money Lenders are essential wellspring of credit to the agriculturist's half of the credit needs of the ranchers are met by the Money Lenders. They are of two kinds. One sort is the agriculturists cash loan specialists and the other kinds are proficient Money Lenders. In the course of recent years, the significance of Money Lenders has been declining quickly. In 1950-51 Money Lenders accounted to 70%, yet in 2016-17 they accounted just 18%. These Money Lenders supply credit to the agriculturists for beneficial and ineffective purposes. They give credit against promissory notes with no home loan. Be that as it may, there numerous acts of neglect. They play distinctive traps and press cash from agriculturists.

#### **b) Traders and commission-agents**

Merchants and commission-specialists stretch out advances to the rancher against their harvests. They charge high rates of intrigue furthermore, compel the ranchers to move their produce at low costs. They charge overwhelming commissions.

#### **c) Relatives**

Relatives likewise supply credit to the ranchers. Such credits are casual and may not convey any intrigue. The reimbursement is additionally exceptionally simple. Be that as it may, this is undependable and less significance.

#### **d) Land-lords and Others**

Land lords and others likewise supply credit to the agriculturists both for beneficial and useless purposes. The rate of intrigue is overwhelming. There is each probability of losing their terrains to the land rulers and getting to be reinforced workers. This source involves to 9% of all out credit.

### **Institutional Sources**

#### **a) Co-operative Societies**

The legislature of India began Co-operative Credit Societies in India in 1904 so as to supply satisfactory and shabby credit to the agriculturists. The advancement of Co-operative

Societies was extremely moderate and there is a record of just 3.1 percent complete credit in 1951-52. After autonomy, there is quick advance in Cooperative credit. In 2017-18, it accounted to 42.5 percent.

The Co-operative Societies didn't give wanted results coming up next are some of the reasons why this framework is moderate and yield poor outcome.

- Rich land rulers deal with these social orders
- Co-operative Societies orders advance just momentary advances; however, the agriculturists sequin medium and long haul credits additionally
- Credit goes just to the enormous agriculturists who control social orders.
- There is a great deal of deferral in setting account from the social orders. At that point, the reason would be finished.
- In numerous social orders there are control nations and groupism.
- The rancher needs to rely upon cash loan specialists for different purposes while the social orders give credits just for farming reason.
- There is nepotism and preference while giving credits.

The association branch of Co-operative Societies directed an examination in 1967 and found that the social orders one serving just the interests of huge land masters at' the expense of little agriculturists. As it were 3.5 percent of the all out credit goes to the low salary gathering of the country families and 53 percent credit goes to the rich land rulers.

#### **b) Land Development Banks**

The land development banks one began to progress long term credit say 15 to 20 years at low rates of intrigue. In any case they contract grounds of the ranchers. The complete number of banks by 2017-18 Were more them 1031 and aggregate sum progressed was up to ₹3,699.00 crores.

#### **c) Commercial Banks**

Commercial Banks loan cash to industry and exchange. In any case with the nationalization of 14 noteworthy banks in 1969 and 6 banks in 1980, the banks began loaning widely to the ranchers. They loan for the buy of agrarian hardware and actualize for example, tractors, pumpsets, and composts and so on; by 2017-18 all business banks had propelled credits over ₹229.599 crores to the agriculturists.

#### **d) Government**

The Government additionally propels present moment and long haul advances to the agriculturists. These advances are designated "Takkavi Loans". These advances are commonly cutting-edge to in times of characteristic cataclysms, for example, starvations, floods, tornados and so on, the rate of enthusiasm for low. The obligation can be reimbursed in portions. These sources structure just 4% of country money. Other than the abovementioned, the Reserve Bank of India, Rural renegotiate and Development Corporation, State Bank of India, Regional Rural Banks and other money establishments moreover stretch out credit to the rustic agriculturists.

## **Issues / Problems of Rural Credit in India**

### **1. Deficiency**

Notwithstanding extension of rustic credit structure, the volume of provincial credit in the nation is as yet lacking when contrasted with its developing necessity emerging out of increment in costs of agrarian information sources.

## **2. Lacking Amount of Sanction**

The measure of advance authorized to the ranchers by the offices is additionally especially insufficient for meeting their distinctive parts of agrarian activities. Thinking about the measure of advance endorsed as deficient and irrelevant, the agriculturists regularly redirect such credit for useless purposes and subsequently weaken the very reason for such advance.

## **3. Lesser Attention of Poor Farmers**

Provincial credit offices and its plans have neglected to address the issues of the little and minor agriculturists. In this way, lesser consideration has been given on the credit needs of the penniless ranchers though the nearly wealthy agriculturists are getting more consideration from the credit offices for their better credit value.

## **4. Developing Over-contribution**

The issue of over-contribution in horticultural credit keeps on being a region of concern. The recuperation of agrarian advances to different organizations is likewise not under any condition attractive. In 1997-98, the recuperation of rural advances of business banks, Cooperative banks and provincial rustic banks were 63 percent, 66 percent and 57 percent individually. Such developing over-duty has additionally been come about because of poor reimbursing limit of ranchers. Because of that, the credit organizations are getting to be careful about allowing advance to agriculturists.

## **5. Deficient Institutional Coverage**

In India, the institutional credit game plan keeps on being lacking when contrasted with its developing needs. The advancement of Cooperative credit establishments like Primary rural credit social orders, land improvement banks, business banks and local rustic banks, have neglected to cover the whole provincial agriculturists of the nation.

## **6. Red Tapism**

Institutional agrarian credit is exposed to red-tapism. Credit establishments are as yet embracing lumbering standards and conventions for propelling advance to ranchers which at last power the agriculturists to depend more on exorbitant non-institutional wellsprings of credit.

### **Measures Taken to Improve Credit Flow to Agriculture**

So as to enhance the stream of credit to farming, the Government has presented the accompanying measures in 1998-99

- i. Procedural disentanglement for credit conveyance has been made (according to R.V. Gupta Committee Report) through legitimization of inside returns of banks.
- ii. More powers have been appointed to branch directors to raise the credit stream to horticulture.
- iii. Introduction of composite money credit utmost to ranchers, presentation of new advance items with sparing parts, money payment of advances, regulation of no due declaration and watchfulness to banks on issues identifying with edge security prerequisites for agrarian advances above ₹10,000.
- iv. Introduction of somewhere around one particular horticultural bank in each state to take into account the requirements of innovative.
- v. Introduction of money credit office.
- vi. Insuring Kisan Credit cards to ranchers to draw money for their generation needs based on the model plan arranged by NABARD.
- vii. The Government has made course of action for problem free settlement of questioned instances of over duty.

- viii. To enlarge Rural Infrastructural Development Fund (RIDF) with a corpus of ₹10,000 crore with NABARD to fund provincial foundation improvement extends by states.

In this manner, the stream of institutional credit for farming and partnered exercises which was ₹ 31,956 crore in 1997-98 is evaluated to have expanded to ₹64,000 crore in 2001-02. The all out credit now from all organizations is anticipated to achieve the dimension of ₹82,073 crore by 2002-03. The all out credit now to farming amid the period 1997-2002 is probably going to be of the request of ₹2,33,700 crore which is near the Ninth Plan projection of ₹ 2,29,750 crore.

For the Tenth Plan time frame (2002-07) the credit stream into horticulture and associated exercises from all saving money offices is anticipated at ₹7,36,570 crore, which is multiple occasions the credit stream amid the Ninth Plan.

## **1.2 NABARD**

National Bank for Agriculture and Rural Development (NABARD) is a zenith improvement budgetary foundation in India, headquartered at Mumbai with territorial workplaces all over India. The Bank has been endowed with "matters concerning arrangement, arranging and tasks in the field of credit for agribusiness and other monetary exercises in country zones in India". NABARD is dynamic in creating money related consideration strategy.

NABARD was built up on the proposals of B. Sivaraman Committee, (by Act 61, 1981 of Parliament) on 12 July 1982 to execute the National Bank for Agriculture and Rural Development Act 1981. It supplanted the Agricultural Credit Department (ACD) and Rural Planning and Credit Cell (RPCC) of Reserve Bank of India, and Agricultural Refinance and Development Corporation (ARDC). It is one of the chief offices giving formative credit in country territories. NABARD is India's particular bank for Agriculture and Rural Development in India.

The underlying corpus of NABARD was Rs.100 crores. Ensuing to the update in the piece of offer capital between Government of India and RBI, the paid up capital as on 31 May 2017, remained at ₹ 6,700 crore with Government of India holding ₹6,700 crore (100% offer). The approved offer capital is ₹30,000 crore.

Worldwide partners of NABARD incorporate World Bank-subsidary associations and worldwide formative organizations working in the field of agribusiness and provincial advancement. These associations help NABARD by exhorting and giving money related guide for the upliftment of the general population in the provincial zones and enhancing the agrarian procedure.

### **Role and Functions of NABARD**

NABARD is a development bank established under statutory provisions. Let us briefly go through important characteristics of this development bank to get a clear understanding of its role and functions.

The National Bank for Agriculture and Rural Development is famously alluded to as NABARD. It is assigned as a zenith advancement bank in the nation. This national bank was built up in 1982 by a Special Act of the Parliament, with a mandated to elevate country India by encouraging credit stream in farming, cabin and town enterprises, handiworks and little scale businesses. It is likewise

required to help non-ranch division while advancing other unified financial exercises in country territories. NABARD capacities to advance feasible country improvement for achieving flourishing of provincial zones in India.

It is essentially worried about "matters concerning arrangement, just as arranging and tasks in the field of credit for horticulture and other monetary exercises in rustic regions in India". It is significant with reference to NABARD that RBI has sold its own stake to the Government of India. In this manner, Government of India holds 99% stake in NABARD.

### **Role of NABARD**

- It is a pinnacle establishment which has capacity to manage all issues concerning approach, arranging just as tasks in giving acknowledgment for horticulture and other monetary exercises in the country territories.
- It is a renegotiating organization for those establishments that give speculation and generation credit to advancing the few formative projects for rustic advancement.
- It is enhancing the absorptive limit of the credit conveyance framework in India, including observing, definition of restoration plans, rebuilding of credit establishments, and preparing of work force.
- It co-ordinates the country credit financing exercises of a wide range of establishments occupied with formative work at the field level while keeping up contact with Government of India, and State Governments, and furthermore RBI and other national dimension foundations that are worried about approach detailing.
- It gets ready rustic credit designs, yearly, for all locale in the nation.
- It additionally advances inquire about in rustic saving money, and the field of agribusiness and provincial improvement.

### **Functions of NABARD**

- NABARD gives high need to ventures shaped under IRDP.
- It gives renegotiate to IRDP accounts so as to give most astounding offer for the help for destitution alleviation programs kept running by IRDP.
- Other than the exercises included under IRDP, it additionally makes the administration zone plan, to give in reverse and forward linkages and furthermore infrastructural support.
- NABARD likewise gets ready rules for advancement of gathering exercises under its projects and gives 100% renegotiate backing to them.
- It is attempting endeavors to set up linkages between Self-help Group(SHG) that are sorted out by intentional organizations for poor and destitute in rustic territories and other authority credit agencies.
- It renegotiates to the total degree for those ventures that are taken under the 'National Watershed Development Program' and the 'National Mission of Wasteland Development'.
- It likewise has an arrangement of District Oriented Monitoring Studies, under which, think about is led for a cross area of plans that are authorized in a region to different banks, to find out their execution and to distinguish the requirements in their implementation, It additionally starts proper activity to cure them.
- It likewise underpins Vikas volunteer Vahini programs which offer credit and advancement exercises to poor ranchers.

- It additionally assesses and regulates the helpful banks and RRBs to occasionally guarantee the improvement of the country financing and agriculturists' welfare.
- NABARD additionally suggests about authorizing for RRBs and Cooperative banks to RBI.
- NABARD additionally gives help and backing to the preparation and advancement of the staff of different other credit institutions that are occupied with credit dispersions.
- It likewise runs programs for farming and provincial improvement.
- It is occupied with controls of the helpful banks and the RRB's, and deals with their ability procurement through IBPS CWE directed the nation over.

### **1.3 Refinance -Terms and conditions for Refinance by NABARD**

NABARD has endorsed definite terms and conditions based on which credit offices are given by it. The terms and conditions for present moment furthermore; medium-term advances on non-schematic premise rely upon both, the kind of office and the foundation to which the renegotiate is given. The imperative terms and states of the NABARD's renegotiate office on schematic premise, are as per the following-

#### **Unit Cost**

Unit cost is identified with specialized parameters. For various sorts of speculation has been recommended sensible normal unit cost. Be that as it may, unit cost in the individual cases, is to be resolved based on specialized plans, citations and so forth. Financing banks can deal with any minor increment in the unit costs. IN such cases, where the unit cost increments or any unusual heightening happens in the expense amid the usage of the conspire; the financing banks can approach the NABARD with reasonable subtleties. For this reason, in every one of the Regional workplaces of the National Bank, a Standing Committee has been comprised. This Committee audits the standards of unit expenses of different ventures on half-yearly premise. The board of trustees may overhaul the equivalent, if feels vital. Accordingly, we find that the practical expenses are received under the arrangement of renegotiate.

#### **Contribution of Beneficiaries**

As stipulated by the NABARD the borrowers need to contribute an entirety of cash to the all out speculation cost. The farthest point of commitment depends upon the status of the borrower, for example, little, medium or vast ranchers and the idea of venture. In the instances of little ranchers, the recipient's commitment (counting mandatory buy of offers, claim work and other commitment in real money or kind) is at least 5 percent of speculation cost for all reasons. In the instances of medium agriculturist, it is at least 10 for every penny (7 percent for at least two agriculturists in a gathering credit) of venture cost. For different recipients this farthest point is 15 percent (10 for at least two agriculturists in a gathering advance). Be that as it may, with the end goal of pumpsets under minor water system the recipient's commitment is 10 percent. In the instances of corporate bodies, a still higher up front installment is stipulated which isn't under 20 percent. It relies upon the sort of task, reasonability and so forth. On account of plans with capital endowment, especially, for little and minimal agriculturists and landless workers, the endowment is treated as up front installment of the borrower, in this way, giving help to the more fragile segments. Additionally, on account of all such plans financed by LDBs the initial installment by a definitive recipient is incorporated into the required offer capital commitments.



### **Refinance Amount**

The financing banks/State Governments are required to make certain stipulated dimension of commitment for financing the task. The measure of renegotiate endorsed by the NABARD extends between 50 percent and 95 for each penny of the bank advances. For need parts, similar to minor water system, land advancement. Incorporated Rural Development Program (IRDP) and other programs to assist flimsier segments, the higher measure of renegotiate is accessible. NABARD has likewise settled the higher rate of renegotiate in the situations where the SLBs. In reverse Entire North Eastern makes propels what's more, eastern districts will likewise be profited through this sort of course of action.

### **Refinance Security**

State Government or the financing bank should ensure the renegotiating of the bank and in the meantime outfit other security to the fulfillment of the National Bank. There is an arrangement of pavement of the security or Government ensure for any qualified organization or any class of qualified establishment on the benefits of each case. By and large the National Bank forgoes security in the instances of CBs including RRBs as a result of the operational issues in making sub-home loan or hypothecation of security. On account of SCBs, the State Government should ensure the renegotiate. This assurance can be postponed by the National Bank if the SCBs satisfy certain conditions. On account of LDBs, the concerned State Government ought to ensure the extraordinary improvement debentures. Under the arrangements of the NABARD Act, 1981, this is likewise given that every one of the securities acquired by the acquiring establishment from a definitive borrowers ought to be held in trust for the benefit of the National Bank as indicated by area 29(2), gave in that.

### **Security from the Side of Ultimate Beneficiaries**

The financing banks recommend the security from extreme borrowers. For this, the RBI and the National Bank issue rules every once in a while, for instance, for the most part the SLDBs get the security as home loan of terrains. Accordingly, these foundations can drift debentures under such spread. Along these lines, a portion of the SLDBs have revised their byelaws for authorizing credits against the hypothecation of versatile resources, gather ensure, and so forth.

### **Rationalization of Interest Rate on Refinance**

The rates of intrigue charged by the NABARD on its renegotiate and the rates of intrigue charged by the financing organizations are liable to be decided every once in a while keeping in the view the general loan costs structure and the arrangement of the GOI and the RBI in such manner. At the season of foundation of the NABARD the rate of enthusiasm on its renegotiate to banks also, the rates of enthusiasm for credits by banks to a definitive borrowers are given underneath.

**Table 1.1 Rationalization of Interest Rate on Refinance**

Loan	N.E Region Including Sikkim & A & N Islands (for all purposes)	MI, DLF,LD,WLD, SGSY, SHG, SC-ST Action plan	FM/agri-clinics, Cold storages, Rural godowns	Other including Rural Housing
Upto Rs.25000	6.75	6.75	6.75	6.75
Over Rs.25000 Upto Rs.2 laksh	6.75	6.75	7.75	7.75
Over Rs.2 lakhs	6.75	6.75	7.75	7.75

Source: Annual Report of NABARD 2018

### Evaluation Fee and Period Loan

The banks are permitted to charge 0.5 percent assessment expense of the expense of venture for preparing charges of credit applications under the arrangements of the NABARD Act, 1981. NABARD is approved to fix the most extreme time of credit upto 25 years. This greatest time of credit settled by the National Bank relies on the idea of advancement and financial matters of the speculation. Under the IRDP propels the base time frame of advances and the beauty time frame required for each kind of speculation has been indicated to guarantee that too short development periods are not settled. The development of credits are settled based on reimbursing limit yet does not surpass the helpful existence of the advantages financed. For the most part such advance developments try not to surpass 15 years.

In the instances of financing to little agriculturists the most extreme reimbursement period settled is 9 years for the siphon sets and 15 years for all other minor water system advances. In the instances of different agriculturists this period is settled 9 years for similar purposes referenced previously. Loaning for differentiated purposes, reimbursement periods depend on reimbursing limit of the recipients yet in any case it will surpass 15 years.

Now and again the development or beauty period is permitted previously reimbursement begins. On account of minor water system and land advancement purposes, by and large, the effortlessness time frame is given which depends on kind of venture, keeping the reality in the view that the recipient isn't called upon to reimburse till the manors achieve monetary bearing state. In such cases the arrangement to concede the intrigue is permitted amid development period in the general enthusiasm of ranchers.

### Repayment of Loans

The reimbursement from various banks to the NABARD is drawn up at the season of each drawl of renegotiate, if the renegotiate from previously mentioned banks pretty much match with the concurred dates for gathering from extreme borrowers according to plan given underneath-

All Repayments of Loan Eligible for Refinance and due from Borrowers	Repayment of Refinance on or Before
From January to 30 <sup>th</sup> June of each	31 <sup>st</sup> July each year
From 15 <sup>th</sup> July to 31 <sup>st</sup> December of each year	31 <sup>st</sup> January of subsequent year

In addition, the SLDBs, have confronted trouble in getting full recuperation of their advances from

individual borrowers to recover the unique improvement debentures on yearly premise. Under such conditions the NABARD has allowed SLDBs to glide uncommon advancement debentures with a development time of not over two years in overabundance of the time of the relating credits conceded to a definitive borrowers gave the greatest time of debentured does not surpass 15 years. In any case, this office isn't material for such unique improvement debentures to corporate bodies, for example, Power Board, Lift Irrigation Corporations and so on as indicated by the Bank's arrangements.

### **Eligibility Criteria**

NABARD has embraced the strategy to control the loaning of Helpful and Commercial Bank including RRBs based on their recuperation execution, with the end goal of realizing mindfulness on their part for taking proper measures for guaranteeing full recuperation and along these lines encouraging reusing of panic capital assets. The National Bank has forced a control as indicated by which these financing banks are qualified to acquire more quantum of renegotiate when their recuperation execution moves forward. These banks can take part in undertaking loaning with NABARD's help just when they accomplish a recuperation dimension of at the very least 60 for each penny of interest.

### **1.4 Eligible Refinancing Institutions**

The qualified organizations to obtain renegotiate offices from NABARD are SLDBs, SCBs CBs and RRBs (Gramin Banks). Different sorts of renegotiate lodging are given by the NABARD. The present moment (ST) renegotiate is given to SCBs in the interest of CCBs in states with three-level helpful credit structure. In such states where three tire structure does not exist, renegotiate is given to SCBs. The reasons for which ST renegotiate office is given are - crop advances, advertising of yields, inputs circulation, working capital necessities of helpful sugar industrial facilities, obtainment of crude materials, generation and advertising exercises of weavers' and different ventures, social orders and generation and showcasing exercises of country craftsman's. Be that as it may, the time of such sort of renegotiate does not surpass year and a half.

The medium-term (MT) renegotiate office with the end goal of endorsed agrarian purposes' and 'transformation of ST crop credits into MT advances due to common disasters and foe activity' is given by the NABARD to SCBs what's more, RRBs. Be that as it may, for the 'motivation behind buy of offers of preparing social orders' renegotiate is accessible to SCBs as it were. This sort of MT renegotiate settlement is accommodated the period from 18 months to 7 years. A few other medium and long haul (not surpassing 25 years) facilities are given to SCBs, LDBs, RRBs and CBs with the end goal of settled ventures in agrarian and non-ranch country exercises under schematic loaning.

NABARD gives renegotiate backing to states to the commitment to share capital of agreeable Government credit organizations. Such kind of renegotiate is endorsed for a period not surpassing 20 years. Composite credit is likewise authorized by NABARD to RRBs for every one of the reasons as examined prior other than working capital prerequisites of helpful sugar manufacturing plants and buy of offers of preparing social orders. The subtleties of the renegotiate office gave to qualified establishment are as pursues like that State Cooperative Banks (SCBs), Regional Rural Banks (RRBs), State Land Development Banks (SLDBs) and Commercial Banks (CBs).

## **Lead Bank**

In the words of -Smt.Indira Gandhi "Our banks must adopt a new attitude be-friending the poor and taking the benefits of progress to the rural areas and become agents of change and development".It is to be accentuated that the complex financial conditions winning in country India, the business banks or Regional country banks ought not to stay content with the conventional job of moneylender alone. They should carry on their exercises in the more extensive content as the companion, savant and guide of rustic mechanical unit<sup>2</sup>. With regards to the above view, the Government of India and the Reserve Bank of India have been planning different plans to bring business banks nearer to rustic India; one of such plans presented in December, 1969 was the Lead Bank Scheme, which proclaimed the "zone approach" to keeping money. This plan, presented at the area level, accommodates the co-appointment of the exercises of all the business and Cooperative Banks and other monetary organizations working in the area by one Bank, which is assigned as the Lead Bank of that region. Every one of the regions in the nation has been apportioned to such Lead Banks.

The National Credit-Council comprised an investigation gather in October 1968 to prescribe a proper hierarchical casing work, for executing the plans which help in accomplishing the social destinations set before the nation. The investigation gathering headed by Prof.G.R.Gadgil, at that point Deputy Chairman of the Planning Commission. Recommended a zone approach for keeping money advancement. It suggested that each business Bank be assigned regions, in order to play a main job in its separate locale as respects managing an account improvement. The examination gather felt that this progression would help in broadening institutional credit on simple terms to the up to this point disregarded divisions, flimsier segments of the general public and in reverse zones. After the nationalization of 14 Major Business Banks, the Reserve Bank of India named a Committee of Bankers, headed by F.K.F. Nariman, to develop a co-ordinate program for giving saving money offices to the under managed an account locale of the nation. The advisory group, in its report submitted to the Reserve Bank in November 15,1969, suggested the setting up of 'Lead Banks' in each area. The Nariman board of trustees prescribed that Banks ought to be apportioned explicit areas, where they would lead the pack in reviewing the capability of keeping money advancement, in expanding branch development and broadening credit offices.

The proposals of the Nariman Committee was talked about at the Meeting of the standing Committee of Bankers in December, 1969. The rule of the 'Lead Bank' was acknowledged at the Meeting. Along these lines, the Reserve Bank of India, after watchful thought of the proposals of the Gadgil contemplate gathering and Nariman Committee, gave last shape to the Lead Bank Scheme towards the finish of 1969.

### **Objectives of the Lead Bank Scheme**

Under the plan, Lead Banks shared the obligation of studying and building up the saving money capability of the considerable number of regions. Lead Banks were required to expect the job of reactant operators of monetary advancement in their regarded lead locale. They were required to fill in as pioneers to achieve a co-appointment of Cooperative banks, business banks and other budgetary establishments in their individual areas in the premium of locale improvement. This is an extremely essential job in which the banks are required to relate what's more, adjust their activities to arranged provincial advancement. Based on the review, the lead banks were required to evaluate

the store potential and fill the credit holes to enhance bank propels in provincial territories, particularly to need segments and flimsier areas. The nearby contribution of the Lead Bank with a specific territory won't just outcome in store preparation yet in addition in the development of account to agribusiness and little businesses. The accompanying vital advantages were required to spill out of the plan.

- i. The entire nation would be served by a well-weave arrangement of business and helpful managing an account.
- ii. Branch development, supervision and direction would end up viable.
- iii. A dynamic connection between business banks, Cooperative credit establishments furthermore, government specialists at the region level would develop.
- iv. (iv) Major requirements hindering the improvement of the area's economy would be recognized also, the Lead Bank would initiate the fitting organizations to healing action.

### **Functions of the Lead Bank**

So as to accomplish the previously mentioned destinations, the Reserve Bank of India spelt out the accompanying capacities to be performed by the Lead Bank.

- To study the assets and potential for keeping money advancement in its region.
- To overview the quantity of mechanical and business units, ranches and other foundations which don't have financial balances, or which depend basically on cash moneylenders, expanding the assets of such units by extra generation through assistance from the managing an account framework.
- To analyze the offices for advertising of rural produce and mechanical generation, capacity and warehousing and the connecting of credit with promoting in the region.
- To examine the offices for stocking of manures and other rural sources of info and fixing and overhauling of types of gear.
- To enroll and prepare staff for offering guidance to little borrowers and agriculturists in the need divisions and for the development and investigation of the end utilization of credits.
- To help other essential loaning organizations.
- To keep up contact and contact with Government and Quasi-government organizations.

It isn't hard to recognize that destinations of the Lead Bank Scheme match with those of nationalization of Banks. Truth be told, it isn't unrealistic to express that the plan was expected to be the Main Vehicle for accomplishing the targets of bank nationalization. In this manner the duty regarding the general advancement of the area has been depended to the lead banks. In other words, the job of the lead bank is three dimensional.

- (i) A business credit organization for assembling assets and propelling advances.
- (ii) An arranging office, for discovering the necessities and issues and illuminating them by setting up targets.
- (iii) An advancement bank, for filling in as a reactant operator for the improvement of in reverse and the under and undeveloped regions of the locale.

The Lead Bank will be relied upon to expect the significant job in the improvement of managing an account and credit in the apportioned areas. In the meantime, there is unmistakably no goal that the Lead Bank ought to have a restraining infrastructure of keeping money business in an area. The bank relegated the lead job, is in this way expected to go about as the consortium lead and subsequent to distinguishing, through review, zones requiring branch development and zones experiencing credit

hole. It ought to summon the co-activity of different banks working in the locale, for opening branches just as for meeting credit needs<sup>7</sup>. Henceforth, from the above view communicated by the contemplate amass named by Reserve Bank of India to give an account of the working of the lead bank plot in Gujarat and Maharashtra, it is very evident that the Lead bank isn't relied upon to assume an overwhelming job the extent that managing an account business in the region is concerned.

## **Administration of the Scheme**

### **Allocation of Districts**

All the districts of the country have been allocated to the banks (public sector and to a few private sector) except the unremitted districts to assume lead responsibility. The Bank which has been assigned the lead responsibility is called Lead Bank of the district and such district for the Lead Bank shall be termed as lead district. The distribution of district was mainly done on the basis of certain criteria like size and resources of bank, geographical contiguity, ability to undertake lead responsibilities, with re-organisation of the districts and nationalisation of six more banks in 1980, the Lead bank responsibilities were readjusted from time to time. Allocation has been made in such a way that in each state there would be more than one Lead Bank and to the extent possible, for each bank to operate in more than one state.

### **Organizational Setup**

Lead Bank Scheme includes the interest of Lead bank, other business banks (Non lead banks) Regional Rural Banks, Cooperative banks, other money related foundations like state money related partnership, Khadi and town industry board, Reserve Bank of India. NABARD and formative offices of the Government. The hierarchical set up at principle establishments which partake in the usage of Lead Bank Scheme is as under for the compelling execution of Lead Bank Scheme, the banks which have been appointed the lead obligation, posted separate officer in charge who is called as Lead bank officer. In a portion of the banks, LBO is assigned as Lead locale director.

### **Lead Bank Officers - Duties, Functions and Responsibilities**

Lead Bank Officer is relied upon to execute as the man on the spot for completing all the duties depended to the Bank under the Lead bank plot. He ought to liaise not just with different parts of his own bank yet in addition with the coordinating parts of other business banks and Cooperative and land improvement banks working in the locale. He is required to liaise with Government authorities in the regions and squares as well. While releasing his obligations, the Lead bank officer should consider the soul of the Lead Boycott Scheme which visualizes joining of the exercises of various organizations occupied with the formative errand of the locale viz., business banks, Cooperative banks, land advancement banks, Governmental and Semi-Governmental organizations, and so forth.

- a. To gather gatherings of DCC, DLRC, standing advisory group, non-lead bank and uncommon DCC, and so forth, according to calendar or prerequisites. He will get ready foundation material and accumulation of information required for the gatherings. To every one of the individuals from the house, the plan alongside foundation papers and ordered information and notice of the gathering ought to be sent adequately ahead of time, say 15 days. He will record the minutes of the meeting. The procedures ought to draw out the discourses and choices landed at unmistakably. The things not exhorted beforehand but rather brought up in the gathering ought to be independently in the procedures. The organizations in charge of making further move on the choices together with the time plan for such activity ought to be shown in the procedures. The concerned

- offices ought to give fundamental input in regards to the move made on the choice to DCC. LBO ought to catch up issues requiring activity by banks and other money related offices. It ought to be guaranteed by the LBO that the monetary organizations and government divisions outfit him heretofore appropriate foundation notes regarding the matters proposed for talk at DCC.
- b. He will gather the information of region profile improvement projects of the region, extra infrastructural support amid the arrangement time frame, survey the capability of different actually possible and financially suitable exercises in the area, request of the exercises, asset position and staff accessibility with the banks to get ready credit designs also, outfitting different annexures in the credit plan record. He will likewise put in DCC, the subtleties of specialized achievability and monetary practicality of new exercises to be presented in the area. He is the Kingpin during the time spent DCP and AAP detailing. He is relied upon to complete the errand with assistance of sub-gathering of the DCC and contribution of the Government divisions and budgetary organizations in the area.
  - c. He will successfully screen the usage of credit plan in the timetables endorsed by the Reserve Bank of India on a quarterly reason for this reason; he will be required to gather information from the parts of his bank as well as from the area co-coordinators of other money related establishments/banks. This information will be accumulated and set in DCC gatherings. One duplicate of collected information will be sent to his controlling office, SLBC and Regional Office RBI inside the endorsed calendar.
  - d. He will keep close contact with the region experts and other government and semi Government offices with the prime capacity of co-ordinating the banks formative works in accordance with the area advancement designs drawn up by the region experts. When all is said in done, he will be aware of his obligations and try to see that lead locale credit designs are executed by all banks, and help of improvement organizations might be looked for wherever it is vital.
  - e. The Lead Bank Officer will regulate the everyday usage of the area credit plan and by and large stay in contact with other taking an interest organization to guarantee that the yearly part of the area plan is circumspectly actualized. He will likewise act adequately to guarantee that issues, assuming any, in the execution of the credit plan are settled by tapping up the issue with the concerned government or different organizations first at region level. On the off chance that not settled at region level, at that point at the State level/Regional level/Divisional/Regional Manager to keep educated about his exercises.
  - f. Periodically the credit designs should be updated and up-dated. This assignment will be borne by the Lead Bank Officer who for this reason, continually keeps watch on all the new plans which are being drawn up by various offices, just as new mandates of the Reserve Bank of India and Government of India.
  - g. The Reserve Bank of India expects that the Lead Bank will direct assessment considers now and again on the advancement in usage of credit plan. The Lead Bank officers should take up this work occasionally and present his answer to head office, who would conclude it before submitting to the Reserve bank of India and Ministry of Money, Government of India.
  - h. LBO should work with close compatibility and have visit meetings with the central point officer of the state government.
  - i. With the presentation of administration territory approach, solidification of plans and observing framework will be done through PC organization. LBO will need to modify the framework in such a way, that overlapping is annihilated.

### **Forums of Co-ordination**

Lead Bank Scheme was developed as a casing work to be progressively purposive to the necessities of the country economy. The goals of the plan can't be accomplished except if "provincial loaning is

appropriately attached to all around structured projects of improvements. These calls for compelling co-task and co-appointment between acknowledge establishments as well as between the credit foundations from one viewpoint and the legislature concerned and other improvement organizations on the other". Fitting discussions must be made where these two organizations can meet occasionally to examine. At first gatherings were set up at the District and state level for the usage of plans advanced by both Government and the banks.

### **At the State Level**

#### **State Level Consultative Committee (SLCC)**

This is the most astounding body at the state level to talk about the usage of the Government Schemes, which are to be executed by banks. The Chief Minister is the Chairman of the State Level Consultative Committee. The Cabinet Ministers, the Chief Secretary, all the Departmental Secretaries and Managers of Major Banks are spoken to in this advisory group. The advisory group meets as indicated by comfort.

#### **State Level Bankers Committees**

There are matters which require approach choice at the State Level. Such issues can't be dealt with at Lead District Level. The State Level Co-appointment Committee is a joint discussion of State Level Commercial Bank delegates and State Government Authorities. There are numerous issues like arrangement of foundation, improvement including spending portions, issues requiring between bank co-appointment, designation of plans at region level, consistency of terms and states of credit under explicit plans which can be examined and arrangements touched base at just at state level. Distribution of more staff at local level can be dealt with just at State Level since area level authorities may need important expert. On account of banks likewise certain issues can be unraveled just at more elevated amount. The issues conveyed to higher specialists can be raised at State Level Consultative Committee. The convener of the state level co-appointment advisory group is the Lead Bank for the state and the individuals are the Lead Officers everything being equal and State Level Government Officials. The gathering is met once in three months. They examine various issues and touch base at arrangements.

### **At the District Level**

#### **District Consultative Committee (DCC)**

The DCC has been comprised at the example of Banking Commission (1972) and is a typical discussion for investors just as government authorities to discover answer for the issues in actualizing plans under Lead Bank Scheme. The DCC appeared pretty much intentionally in view of the need felt for counsel the matter of locale improvement plans. Throughout the years, it has advanced as an indispensable piece of the LBS.

#### **Composition of District Consultative Committee**

Chairman	Dist. Collector/D. Y. Commissioner
Convenor	Lead Bank Officer
Members	Chief Executive Officer
	District Planning Officer
	Project Director, DRCA
	General Manager, DIC
	Executive Officers, State SC/BC corporations



District level functionaries of Agriculture,  
Animal Husbandary, Sericulture.

Fisheries and Irrigation Veterinary Department and so on., Lead District Officer, RBI, Agent of NABARD Regional Managers/District Co-ordinators of 5/6. Business banks having a Large Commitment under credit plan, Priority segment loaning and branch arrange. Delegates of RRB District agents of state monetary company, EDC, KVIC and KVIB. Delegates of Dist. Focal Cooperative Banks and other agreeable banks having an expansive responsibility under credit designs.

Other Government Departments, Corporations, Boards, Universities and banks, which are not changeless individuals, might be welcome to explicit gatherings, at whatever point thought about fundamental, based on plan sews. Every part ought to be spoken to just by an authority of a suitable dimension at DCC meeting. The general quality of DCC ought to be kept up at a smaller dimension of 20625 individuals. With the goal that the exchanges at this discussion are important and result-situated.

### **Functioning of District Consultative Committee**

Locale consultative council is where the basic issues looked by the diverse organizations, for example, insufficiency of infra-auxiliary offices and augmentation benefits just as non-accessibility of credit offices are taken up for dialog. Branch extension at region level, keeping money measurements, survey of the usage of the credit plan, survey of the help to need segments under different plans, audit of the proposition sent by District-Industries Center and so on, are the normal things in the motivation. In view of the necessities of each District and the plans in power, extra things are included. One of the vital elements of the District consultative board of trustees is to arrive at uniform terms and conditions for comparative plans and sorts of development. The District consultative boards of trustees settle the challenges experienced in the usage of the Region Credit Plan and examines different issues of basic enthusiasm for by and large improvement of a region. It has no forces to authorize its choices. Be that as it may, even deliberate promise to an objective of serving the general population must be acknowledged as ethically official. The entire procedure is law based and participative wherein influence, cognizance of work for shared objective and valuation for every other. Issues are the essential instruments of accomplishing the ideal destinations.

### **Standing Committee**

The District Consultative Committee by excellence of its constitution and working is not in a situation to practice supervision over the Lead Bank Scheme. Consequently, a Standing Board of the District Consultative Committee has been set up in all regions to manage operational issues emerging in the execution of the Lead Bank Scheme. The Lead Bank Officer is the convener of the standing board. The standing board of trustees is allowed to relate other region authorities and monetary organizations worried about its work. The vital elements of the standing panel are distinguishing the practicality of detailing new bankable plans, aiding the audit of the District credit designs, investigating the accessibility of fundamental infrastructural offices and supply of contributions for the plans and formulating available resources to guarantee appropriate co-appointment among all the concerned organizations. In short the standing board investigates the arrangement and usage of District credit plants. The standing board meets once per month. The reports of the advisory group are considered at District consultative council gatherings.

### 1.5 Rural Credit Institutions

Institutional loaning or credit alludes to credit or advances given by monetary foundations (as opposed to leaser advances given by private people like cash moneylenders, discount and retail traders, proprietors and relatives, and so forth) like helpful social orders, business banks, the RBI, and extraordinarily settled budgetary establishments like provincial rustic banks, ranchers' administration social orders, land improvement banks, lead bank plans and National Bank for Agriculture and Rural Development. Institutional organizations have sorted out assets available to them and expect to meet short, medium and long haul needs of country segment. This isn't the situation in admiration of private account. Also, establishments pursue a lot of guidelines in allowing credits. Institutional structure is extremely old framework in India. The non-institutional acknowledge sources are considered as exploitative and mind-boggling expense framework. Notwithstanding, they are especially open and effectively debatable with the loan specialists. It is seen that non-institutional wellspring of credit is kept on being a vital source in rustic zones.

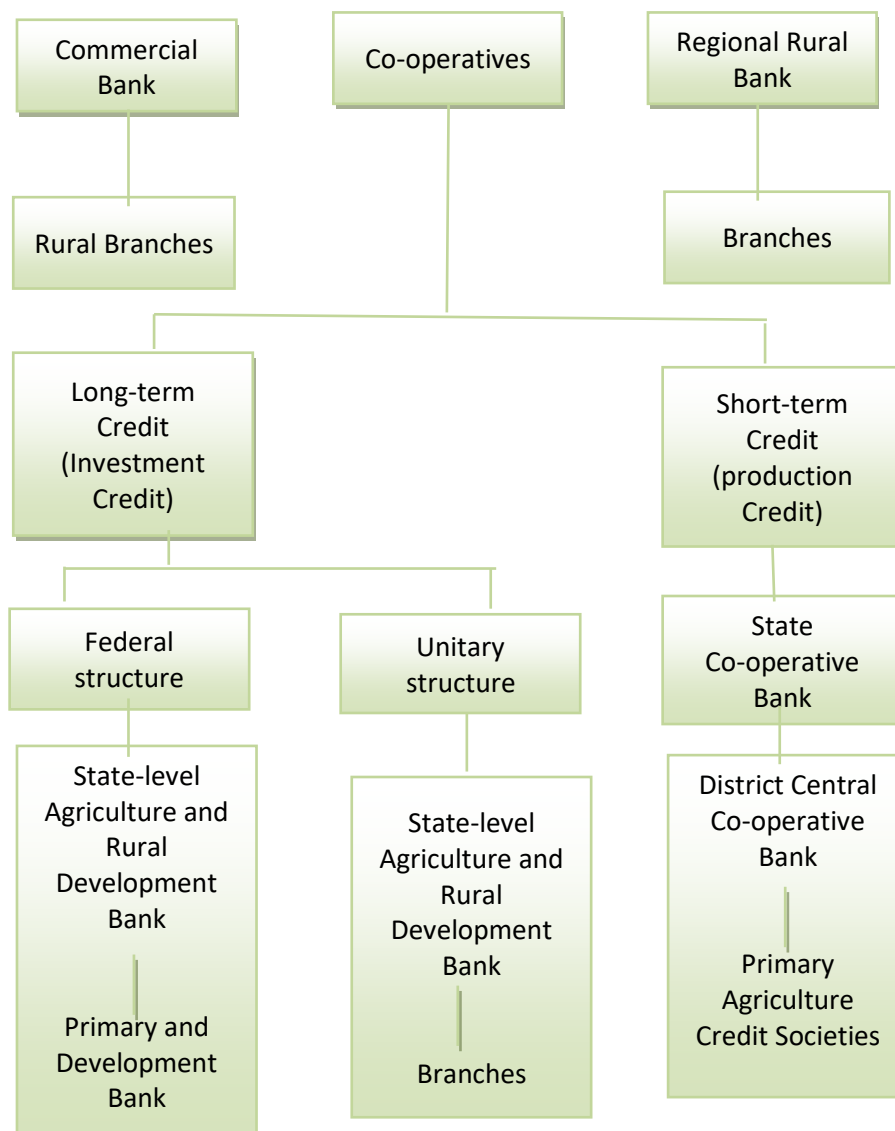


Figure 1.1 Institutional Arrangements for Rural Credit

#### Co-operative

The co-operative credit structure in India comprises of two sections one occupied with short and

medium term credit and the other in long haul credit. The previous, in each State, is a three-level structure. The essential farming credit social orders at the town structure the base. It is on this that the entire building of Cooperative credit is based. They unite into focal helpful banks, more often than not at the region level. At the State level, these are combined into an Apex bank serving a whole State. The Apex bank, in its turn, is firmly connected with the Reserve Bank of India. The long haul credit is given by a Central Land Development Bank for each State at the summit level. The pinnacle banks work sometimes through Primary Land Development Banks, each serving a territory of a discussion or region and where no land improvement banks exists, its own branches or focal Cooperative banks capacities.

### **Primary Agricultural Credit Society**

The Primary Agricultural Credit Society (PACS) is the boss of the farming Cooperative development in India. PACSs were set up in India after the institution of the Cooperative Societies Act in 1904. The administration made endeavors to sustain the Cooperative development to regulate endeavors to alleviate agriculturists from the customary weight of obligation and to advance thrift. Step by step, they expected an increasingly positive job when contrasted with their before normal for association for barrier against abuse by cash loan specialists. There was an unfaltering quantitative development in numbers as well as a developing decent variety in the capacities expected by Cooperative social orders.

### **Functions**

The fundamental elements of the PACSs are to give short and medium term credit; supply horticultural and other creation necessities and embrace advertising of farming produce. Also, the cooperatives help in planning and executing an arrangement for rural generation for the town and attempt such educative, warning and welfare works as the individuals may be happy to take up.

The PACS are proposed to advance the financial premiums of its individuals as per the Cooperative standards and this point is accomplished by exercises in various ways, for example, advancing funds among individuals, giving credits to them, providing them rural necessities and local prerequisites and organizing the advertising of their agrarian produce.

Nature of Loans Given Only individuals from an essential Cooperative credit society can get from the general public. Singular individuals are allowed to obtain from the general public and the sum they can acquire is settled in a distinct extent which is commonly one-portion of their individual resources. The genuine credit given is inside this wide point of confinement and relies on the item for which the advance is taken as additionally the reimbursing limit.

### **Central Co-operative Banks**

In the three-level credit structure, the PACSs get their money related quality from the focal Cooperative banks which work at the local level. The Central Cooperative Banks fill in as a go-between to connect the essential social orders with the currency advertise. They fill in as the adjusting place for changing the surplus and lack of working capital of the essential social orders. The Central Cooperative Banks possess and structure an imperative position in the Cooperative acknowledge structure as they are the essential position in the Cooperative Bank and the Primary Agriculture Credit Societies. The accomplishment of the Cooperative credit development to a great extent relies upon their quality.

Advancing Policy Loans are commonly best in class to essential credit social orders for financing farming, for example, development costs, buy of seeds, excrement and different prerequisites for regular horticultural activities for a present moment (for a year); land recovery, working of steers sheds, burrowing and fixing of wells, buy of steers and trucks for medium term (from 1 to 3 years); for buy and establishment of siphons and oil motors for a medium term (not surpassing 5 years) and for discount of stores (not surpassing one year). Credits are conceded on appropriate security, land, house contract, steers horticultural produce, gold or decorations, settled store receipts, disaster protection arrangements, government promissory notes, and master notes executed by the obtaining social orders. At the general public dimension, the credits are verified by close to home security for dissolvable individuals and home loan of grounds.

### **State Co-operative Banks (Or Apex Banks)**

The State Co-operative Bank is a focal foundation at the State level which fills in as a last connection in the chain between the little and broadly dispersed essential social orders from one perspective and the currency advertise on the other. It adjusts the regular overabundance and insufficiency of assets and compares the interest for and supply of capital. It removes the inert cash in the slack season and supplies to the associated social orders and Central Cooperative Banks with liquid assets amid the bustling season. It is the vertex of the pyramidal structure in a State for the arrangement of short- and medium-term credit to agriculturists on Cooperative premise.

### **Destinations and Functions**

The main targets of the Apex Bank is to co-ordinate crafted by the Central Banks and to interface co-operative acknowledge social orders for the general currency advertise and the Reserve Bank of India. These banks fill in as genuine turns of the Cooperative development in the State. They go about as potential wellspring of credit for occasional and eminent necessities of their individuals.

### **Commercial Banks Finance for Agriculture**

Till the late sixties, co-agents were viewed as the most reasonable organization for farming financing regarding official arrangement and business banks, with their deficient rustic inclusion and urban orientation, were not viewed as equivalent to this undertaking. Despite the fact that co-agents grew generously throughout the years, yet they were as yet powerless to meet the expanding credit needs of farming. Further in the wake of the green upset in the mid-sixties, with its accentuation on the utilization of surprising expense inputs, credit needs of horticulture were required to build quickly and it was felt that Cooperative monetary organizations without anyone else's input would not be in a situation to deal with this volume of credit. A reciprocal job was, in this manner, envisioned for business banks in the field of provincial credit, however Cooperative were to proceed as the key office. Social command over the banks in 1968 and all the more especially, the nationalization of real business banks in July 1969, gave gigantic energy to the program of expanding keeping money offices in the country zones and arrangement of rural credit.

### **State Bank of India**

The State Bank of India opened specific branches known as 'Agrarian Development Branches' (ADBs) at chose concentrated communities' for cooking selective to the credit needs of rural and unified exercises.

These ADBs give a bundle of help, which chooses credit-support including specialized and different

offices. These ADBs begin with field-tested strategies for their regions of tasks covering a time of 2 to 3 years, to begin with. These designs depend on the improvement plan arranged with reference to the potential and neighborhood asset of the zone and the advancement of the arrangement is investigated at standard interims. The State Bank of India was framed on 1 July, 1955, with the death of the State Bank of India Act, 1955, by assuming control over the advantages and liabilities of the Imperial Bank of India.

Loaning for Rural Development Commercial banks are trying not exclusively to fill the credit holes in the field of agribusiness emerging out of the deficient improvement of co-agents but at the same time are looking to add to agrarian advancement by methodically planning projects of advancement reasonable to the asset base of the territory. Amid the most recent couple of years, they have contributed significantly to the advancement of water system, automation, land improvement programs as additionally to exercises associated to farming, for example, cultivation dairying, and so on. For this reason, the business banks have delegated an extensive number of specialized specialists for deliberately examining the issues of farming development and rustic improvement.

### **The Land Development Banks**

Credit Co-operative composed in the start of this century, are the most established rustic credit foundations principally intended to serve the ranchers. It is far since the Land Mortgage Bank was established in past Mysore in 1929 fundamentally so as to free the obligated agriculturists from the grasp of cash moneylenders and from misuse. Indeed, even following 60 years, this Bank which is currently known as Karnataka State Cooperative Agriculture and Rural Development Bank is as yet playing a little yet critical job in giving credit to sharecroppers to verifying inhabitation rights over the terrains they drudged and worked, under the land change measures, however overwhelmingly the Bank is occupied with gainful loaning. Agriculturists are as yet an abused part not such a great amount by cash loan specialists or Zamindars but rather by the center men and under the present monetary conditions. Intemperate reliance on subsistence agribusiness for a dominant part of workers and ward ranch workers has caused difficult issues of financial aberrations. Henceforth it is provincial advancement in the more extensive sense and not only horticultural improvement which holds key to enhance the country economy and the living states of dominant part of the rustic populace. As it should be, rural and rustic advancement have been agreed due Importance in our arranged financial improvement and provincial joblessness has been a need target of different undertakings. This is reflected from the absolute First Plan which said "One of the primary destinations of the Plan is to expand work openings and to raise the way of life of the majority". Little and minimal ranchers and horticultural workers comprise the greater part of the 38% of individuals beneath the destitution line in the nation. They ought to be productively utilized in either monetary action.

The LDBs credit tasks are just in the provincial division with no probability to cross-endowments the misfortunes from different activities and they have no assets of their own for loaning being non-saving money budgetary establishments. In this unique situation, the credit approaches and terms appropriate to LDBs should be very extraordinary and they can't be put at standard with managing an account establishment.

The Land Development Banks (LDBs) have a two-level structure with focal Land Development Banks at the state level and Primary Land Development Banks at the tractable, sub-divisional/locale level.

They supply long haul credit to the cultivators. The Primary Cooperative Credit Societies can't progress long haul advances as they themselves draw their assets from the Central Cooperative Bank for short and medium-terms. The Cooperative likewise needs fundamental mastery to assess property so as to progress long haul credits. Commercialization of farming requires long haul fund. Thus, the requirement for land improvement banks.

### **Objectives of Land Development Banks**

The main target of an essential land improvement bank is to give long haul advances in the wake of orchestrating from the Central land Development Bank, to its individuals against the security of land and other steady properties. Consequently, the essential bank acquires assets from the Central Land Development bank and loans it to its individuals for

- (i) The repayment of old obligations
- (ii) Improvement of rural terrains
- (iii) Redemption of home loan on farming terrains
- (iv) Purchase of land and hardware

These banks likewise empower the soul and routine with regards to thrift, shared help and self improvement in the individuals. There are different backup works likewise being performed by these banks. The main target of a Central Land Development bank is to raise long haul assets for financing the essential improvement banks. This item is satisfied by,

- (i) Floating debentures on the security of its advantages and by home loan bonds exchanged by essential bank to it, entirely as per the standards and controls
- (ii) Receiving stores
- (iii) Granting credits to essential banks
- (iv) Setting up branches, workplaces and so forth., for encouraging the smooth direct at the business
- (v) Acquiring ardent properties and developing structures
- (vi) Appointing appropriate staff for the everyday administration of its issues.
- (vii) Inspecting the essential improvement banks and
- (viii) Performing every such capacity as might be helpful for the satisfaction of the above items. Quickly, the elements of a Central Land Development Banks are to give long haul accounts to its subsidiary social orders, to organize the examination, supervision and direction of its individuals, to grow long haul saving money in the nation, to go about as a connection between the long haul managing an account and Reserve Bank of India and the legislature, to activate rustic investment funds and to animate capital arrangement in the horticultural division by the issue of debentures, to shield the ranchers from the barbarities of the cash loan specialists and from the distance of land to help them in affecting perpetual enhancements for their , lands. The focal land improvement bank is in this manner, the pivot around which the whole long haul keeping money structure in the nation rotates.

### **Farmer's Service Societies**

The National Commission on Agriculture has suggested the association of Farmer's Service Societies (FSS), one for each square or some other reasonable unit of helpful size. The quality of FSS lies in the way that they consider, a thorough perspective on the issues of the little agriculturists. As is notable,

the little and minimal agriculturists require acknowledge as well as opportune accessibility of sources of info and auxiliary administrations, alongside specialized exhortation and administrations, for example, stockpiling, transportation, handling and advertising, ideally through a solitary contact point. These social orders have been sorted out since 1973-74 to meet the previously mentioned necessities of poor agriculturists. The National Commission on Agriculture has prescribed a program of setting up 2,500 such social orders over a time of six years, starting from 1974 with an ability to shape new social orders at the rate of 1,000 every year. In any case, before the finish of June, 1979, there were just 1,200 FSSs in the nation.

### **The Commercial Banks**

The keeping money area in India has experienced ocean change amid the past 25 years. It has risen as one of the vital specialists of rustic advancement. Gone are the days when business banks were just 'purveyors of credit', presently they are synergist operators in the country's financial advancement. It is hence that 14 noteworthy business banks were nationalized in July, 1969 and six more were nationalized in April, 1980. Endeavors are likewise being made to see that no less than 50 percent of the institutional credit goes to flimsier areas. Separate sub-targets have been set up for the more fragile areas and further inside this gathering for the landless workers, craftsman's and so forth. The social goals would be accomplished through (i) fast extension of managing an account benefits through energetic branch development program exceptionally in the unbanked and disregarded zones and (ii) the arrangement of sufficient liberal funds to the 'need segment' which incorporates most ignored territories, for example, horticulture, little scale ventures, proficient and independently employed people, training, transport administrators and so forth.

### **Regional Rural Banks**

The Regional Rural Banks (RRBs) appeared under the 20-Point Economic Program propelled in 1975. Prior, the Banking Commission, named by the Government to contemplate the structure of managing an account improvement in India, mooted setting up RRBs in its report in 1972. The Government looked into the suggestions of the Banking Commission, and named the Narasimham Study Group on July 1, 1975. It presented the report in only 30 days and favored the setting up of RRBs.

The Government of India declared the RRBs mandate dated 26th September, 1975 which was in this manner supplanted by the Regional Rural Banks Act, 1976. On October 2, 1975, five RRBs were built up in four states in Uttar Pradesh, one at Moradabad by the Syndicate Bank and the other at Gorakhpur by the State Bank of India; one in Rajasthan by the United Commercial bank; one in Bhiwani (Haryana) by the Punjab National Bank and one in Malda (West Bengal) by the United Bank of India.

The RRBs were built up with a view a building up the provincial economy by accommodating the motivation behind improvement of horticulture, exchange, trade, industry and other profitable exercises in the rustic regions, credit and different offices, especially to the little and minor ranchers, agrarian workers, craftsman's, little business people and for issues associated therewith and coincidental thereto.

### **Elements of RRBs**

A rustic bank was depicted as " an essential managing an account establishment set-up to serve a

conservative gathering of towns for the most part functioning as a helpful bank, or as a backup of a business bank", and its article would be "to give at one spot the uncommon kind of credit and keeping money offices and related administrations required by agriculturists and other country makers".

### The Elements of RRBs are

- i. To assemble nearby reserve funds;
- ii. To give present moment and medium-term credit for farming and different purposes without anyone else and long haul credit as operators of the Land Development Banks;
- iii. To actualize projects of directed credit customized to the requirements of individual ranchers;
- iv. To give different subordinate keeping money administrations to nearby individuals;
- v. to set-up and medium godown.

**Table 1.2 - The First Five Regional Rural Banks**

Sl.No	Name of Bank	Sponsor Bank	Location of H.O	State	Jurisdiction
1.	Prathama Bank	Syndicate Bank	Moradabad	U.P	Moradabad
2.	Gorakhpur Kshetriya Grameena Bank	State Bank of India	Gorakhpur	U.P	Gorakhpur and Deoria
3.	Haryana Kshetriya Grameena Bank	Punjab National Bank	Bhiwani	Haryana	Bhiwani
4.	Jaipur Nagaur Ananchalik Grameena Bank	United Commercial Bank	Jaipur	Rajsthan	Jaipur and Nagaur
5.	Gaur Grameend Bank	United Bank of India	Malda	West Bengal	Malda West-Dinajpur Mursidabad

Source M.S.Bapna, Regional Rural Banks in Rajasthan, Himalya Publishing House, New Delhi, 1989, P.23.

The rise of the RRBs has made a critical scratch in the financial advancement of the country individuals. The RRBs are taking into account the credit needs of the country individuals. There has been colossal increment in the stores, stores, borrowings, ventures and credits and advances of the RRBs in India. The recuperation execution of the RRBs in India has likewise been empowering. Be that as it may, they still need to endeavor endeavors to be productive and suitable.

### Summary

Abnormal state of unsteadiness and danger of harvest disappointment in dry season inclined zones require an entirely unexpected methodology for meeting credit needs and limiting the dangers of agriculturists and the financing Land Development Banks. To-day tragically with the exception of deferring duty year after year under dry spell conditions, neither the borrowers of term credits nor the financing banks get any genuine alleviation and therefore weight of obligation has developed as



additionally the over dues in banks. Without fitting strategy support and political will, the two of which are inadequate with regards to, recuperation of advances in the provincial segment can't be generously improved and without Improvement financing provincial advancement can't go on to the anticipated dimension.

### Useful Links

- [www.accion.org](http://www.accion.org)
- [www.grameen-info.org](http://www.grameen-info.org)
- [www.opportunity.org](http://www.opportunity.org)

### Model Questions

1. Explain the importance of the credit financial institutions.
2. Discuss the functions of NABARD towards rural development.
3. Explain the different eligible refinancing credit institutions.
1. 4. Explain the problems of supplying agricultural finance
4. Explain the pattern of decentralized rural financial services.

### To Do Activity

- Collect the information about the top ten private micro finance institutions in India.
- Visit the Gramin foundation website and listed the technical and non-technical assistance [www.grameenfoundation.org](http://www.grameenfoundation.org)

# Chapter 2 Financial Inclusion

## Introduction

There are various components influencing access to money related administrations by more fragile segment of society in India. The general populations living in remote and uneven territories experience the ill effects of poor foundation. The absence of mindfulness, low wages and resources, social avoidance, lack of education are the boundaries from interest side. The separation from bank office, branch timings, unwieldy keeping money system and necessities of records for opening financial balances, unsatisfactory managing an account items/plans, language, high exchange expenses and frames of mind of bank authorities are the obstructions from supply side. In this way, the more fragile areas approach casual monetary division as it is effectively accessible despite the fact that it is exorbitant. The most vital explanation behind the budgetary avoidance on account of vagrants and ghetto tenants is the necessity of autonomous narrative verification personality and address. One of the fundamental explanations behind a vast level of the nation's populace staying outside the formal monetary framework is the absence of satisfactory money related proficiency among the majority. In this manner, budgetary education accepts more noteworthy significance to upgrade the capacity of the majority to viably utilize the accessible money related assets to enhance their prosperity. Thus, there is a requirement for money related consideration to fabricate uniform financial improvement, both spatially and transiently and introducing more prominent monetary and social value.

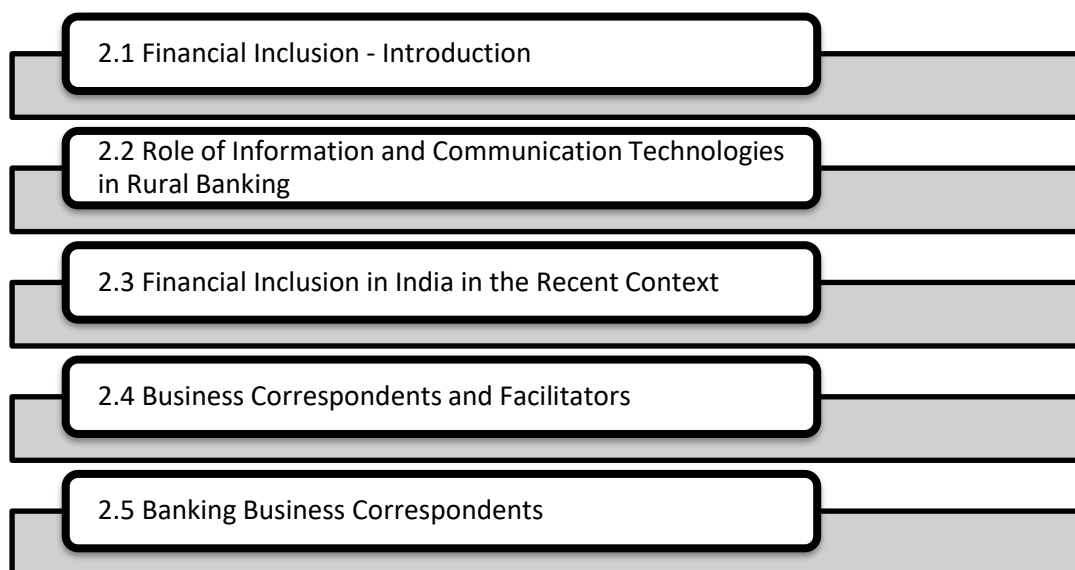
The money related part is constantly thinking of new and consistent approaches to give administrations to the worldwide populace. The expansion in the utilization of innovation in the monetary business (fintech) appears to have filled the void of unavailability to budgetary administrations. The approach of fintech has made a path for all substances to approach every single budgetary device and administrations at sensible expenses. Instances of fintech improvements that have progressively been grasped by budgetary clients incorporate crowd funding, robo-counsels, computerized installments, distributed (P2P) or social loaning, and protection telemetric. While these creative administrations have upset the budgetary world by incorporating more members in the cash division, there is as yet an undiscovered part of the total populace that remain unbanked or under banked.

There is a sizable worldwide market open door for fintech. Notwithstanding, access to various markets is Chaptered by the unbanked gathering, who have a profound question of monetary organizations and direct all-money exchanges. To ease this test, fintech organizations have thought of developments that advance straightforwardness in their dealings with clients. Instances of these developments incorporate telemetric protection advances that furnish approach proprietors with premium rates dependent on number of miles utilized; computerized cash exchanges that utilization Chapter chain records to uncover the idea of dealings and characters of players in the online circle; robo-counsels that transparently reveal and offer low expenses for clients who have constrained access to customary money related consultants because of surprising expenses; and shared (P2P) loaning destinations that advance monetary exchanges where people loan and obtain from one another. P2P loaning is especially valuable to developing business sector members who have no chance to get of getting advances from money related foundations because of an absence of monetary history and credit record for every person.

## Objectives

This chapter will enable you to develop an understanding of the following.

- Need for Financial Inclusion
- To know the Role of Information and Communication Technologies in Rural Banking
- Models of Financial Inclusion
- Results of Financial Exclusion
- Business Correspondents and Facilitators
- Reforms in Business Correspondence model



### 2.1 Financial Inclusion

In 2016, the World Bank expressed that around 2 billion individuals worldwide don't utilize formal money related administrations and over half of grown-ups in the most unfortunate family units are unbanked. The unbanked populace comprises of grown-ups who have no simple access to banks in their areas or who have built up a profound question of the budgetary framework. An activity by the World Bank Group called Universal Financial Access 2020 is taking measures to guarantee that the unbanked network approaches conventional stages like financial records by 2020. Individuals who have fundamental exchange accounts are delegated the under banked. The under banked are grown-ups who have verified the customary devices for directing exchanges, (for example, a ledger) however are not conscious of the advanced joining of these exchanges, (for example, computerized installments). Since having an essential ledger is the establishment on which troublesome advancements are manufactured, fintech offers the under banked a ticket to money related computerized comprehensiveness.

With little access to banks, particularly in rustic territories, under banked clients for the most part complete exchanges in real money or checks, making them helpless against robbery and road cheats. Indeed, even access to bank areas for directing exchanges like money store, check getting the money for, cash request and assets exchange may come at surprising expenses as far as managing an account charges. Fintech, media transmission and keeping money organizations are working connected at the hip to make versatile installment and micro lending offices for monetarily under banked clients. Various online installment and business frameworks fused with cell phones

have been worked to encourage the simplicity with which this underserved populace can inundate them in the computerized economy. Instances of famous applications that have been made to encourage money related comprehensiveness incorporate China's AliPay and India's Paytm Wallet, serving 450 million and 122 million clients in 2016, individually.

With the ascent and ascent of fintech, money related consideration tries to advance the improvement of the total populace using monetary administrations and devices accessible in an inexorably computerized based economy.

### **Meaning of Financial Inclusion**

Money related incorporation is the quest for making budgetary administrations available at moderate expenses to all people and organizations, regardless of total assets and size, individually. Money related consideration endeavors to deliver and proffer answers for the requirements that bar individuals from taking an interest in the budgetary part. It is additionally called comprehensive financing.

### **Financial Inclusion – Global context**

Financial access facilitates day-to-day living, and helps families and businesses plan for everything from long-term goals to unexpected emergencies. As accountholders, people are more likely to use other financial services, such as credit and insurance, to start and expand businesses, invest in education or health, manage risk, and weather financial shocks, which can improve the overall quality of their lives.

Great strides have been made toward financial inclusion and 1.2 billion adults worldwide have gotten access to an account since 2011. Today, 69% of adults have an account. Moving from access to account to account usage is the next step for countries where 80% or more of the population have accounts (China, Kenya, India, and Thailand). These countries relied on reforms, private sector innovation, and a push to open low-cost accounts, including mobile and digitally-enabled payments.

However, close to one-third of adults – 1.7 billion – are still unbanked, according to the latest Findex data. About half of unbanked people include women poor households in rural areas or out of the workforce. The gender gap in account ownership remains stuck at 9 percentage points in developing countries, hindering women from being able to effectively control their financial lives. Countries with high mobile money account ownership have less gender inequality. Financial inclusion has been identified as an enabler for 7 of the 17 Sustainable Development Goals. The G20 committed to advance financial inclusion worldwide and reaffirmed its commitment to implement the G20 High-Level Principles for Digital Financial Inclusion.

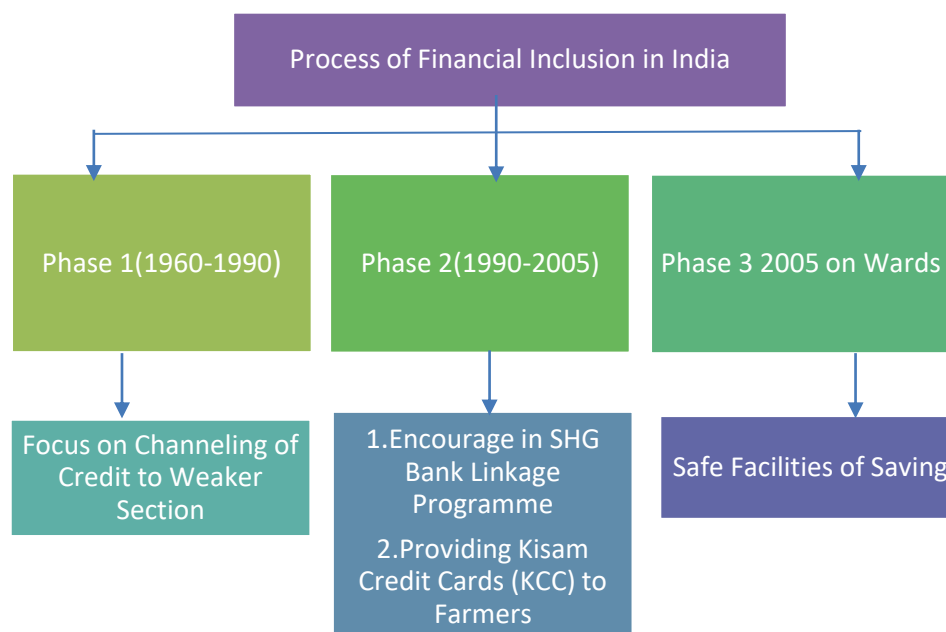
The World Bank Group considers financial inclusion a key enabler to reduce extreme poverty and boost shared prosperity, and has put forward an ambitious global goal to reach Universal Financial Access (UFA) by 2020. Since 2010, more than 55 countries have made commitments to financial inclusion, and more than 60 have either launched or are developing a national strategy. When countries take a strategic approach and develop national financial inclusion strategies which bring together financial regulators, telecommunications, competition and education ministries, our research indicates that when countries institute a national financial inclusion strategy, they increase the pace and impact of reforms.

### Countries that have Achieved the most Progress Toward Financial Inclusion have

- Policies delivered at scale, such as universal digital ID - India and Aadhaar / JDY accounts - more than 1.2 billion residents covered
- Leveraged government payments. (For example, 35% of adults in low income countries receiving a government payment opened their first financial account for this purpose.)
- Allowed mobile financial services to thrive. (For example, in Sub-Saharan Africa, mobile money account ownership rose from 12% to 21%.) Welcomed new business models, such as leveraging e-commerce data for financial inclusion
- Taking a strategic approach by developing a national financial inclusion strategy (NFIS) which bring together diverse stakeholders including financial regulators, telecommunications, competition and education ministries
- Paying attention to consumer protection and financial capability to promote responsible, sustainable financial services

### The Process of Financial Inclusion in India

The procedure of monetary consideration in India can comprehensively be ordered into three stages.



**Figure 2.1 The Process of Financial Inclusion in India**

Amid the First Phase (1960-1990), the emphasis was on diverting of credit to the disregarded parts of the economy. Uncommon accentuation was additionally laid on more fragile segments of the general public. The Second Phase (1990-2005) concentrated principally on reinforcing the money related establishments as a feature of budgetary area changes.

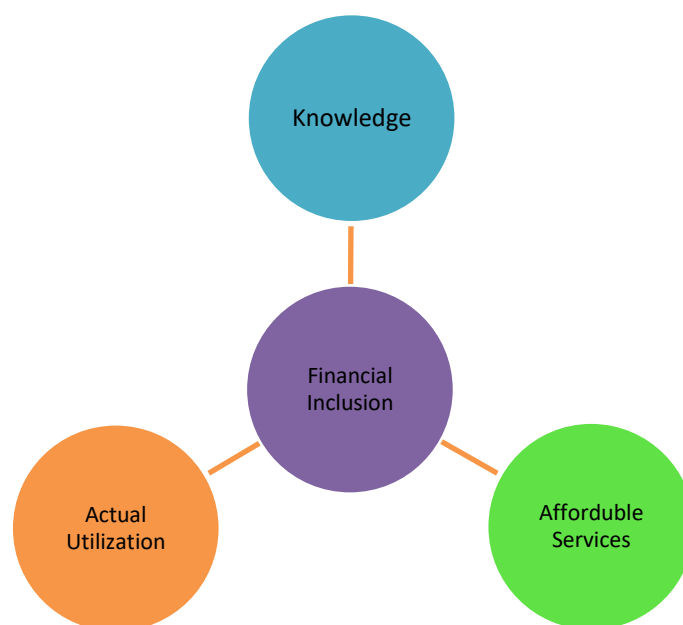
Money related incorporation in this stage was empowered essentially by the presentation of Self-Help Group (SHG) bank linkage program in the mid-1990s and Kisan Credit Cards (KCCs) for giving credit to ranchers. The SHG bank linkage program was propelled by the National Bank for Agriculture and Rural Development (NABARD) in 1992, with arrangement support from the Reserve Bank of India, to encourage aggregate basic leadership by poor people and give 'entryway step' managing an

account. Amid the Third Phase (2005 onwards), the 'money related consideration' was expressly made as strategy objective and the push was on giving safe office of sparing stores through 'straight forward's records. The extent of money related incorporation can be extended in two years.

1. Through state-driven mediation by method for statutory authorizations.
2. Through willful exertion by the managing account networks itself for advancing different procedures to bring inside the ambit of the saving money part the substantial strata of society.

### The Three Parts of Budgetary Consideration in India are

1. Information of Access to Financial Services
2. Reasonable Services
3. Real Utilization



**Figure 2.2 Components of Financial Inclusion**

### Progress in Financial Inclusion

Faster implementation of FIPs is seen after 2010-11. Commercial banks opened new rural branches, increased village coverage, set up ATMs and digital kiosks, deployed BCs, opened no-frills accounts and provided credit through KCCs and GCCs. The introduction of core banking technology and the proliferation of alternative delivery channels contributed to the process of inclusion on a larger scale. The statistics on the key banking network give a sense of the pace of progress in the banking sector as part of the FI.

**Table 2.1 Progress of Financial Inclusion at a Glance**

Parameter of financial inclusion	March 2010	March 2016	March 2017
Number of Bank branches in villages	33,378	51,830	50,860
Number of Business Correspondents (BCs)	34,174	531,229	543,472
Number of other forms of banking touch points	142	3,248	3,761
Total number of banking touch points	67,694	586,307	598,093
Number of BSBDA* (in millions)	73	469	533
Deposits in BSBDA (Amount in Rs. billions)	55	636	977

Source: Annual Report of RBI, 2016-17

## 2.2 Role of Information and Communication Technologies in Rural Banking

Data and Communication Technologies (ICT) is being utilized by the administration and non-government association for building up the provincial and urban zones. In country territories individuals are less mindful. Because of this ignorance individuals can only with significant effort impart to the present market and one another. Government and non-government ventures applications are produced as pilot tasks and it's expected to offer simple access to subject administrations and enhanced handling of government-to-national exchanges. A portion of these have drawn universal consideration and have won renowned honors for their imaginative methodologies. In the event that residents know about the advances so they can without much of a stretch use the administrations given by government and non-government association (NGO). The formers and proprietor of family industry of provincial zone can cruise our item at market cost. In the event that there is legitimate correspondence and transportation accessible, at that point people groups of that region can get the work by little scale industry built up by government and NGO. Power is the key factor for improvement. A few tasks have tried different things with the remote innovation to achieve the remote areas.

For the availability of whole world to the provincial territories, a correspondence media is required as appeared in the accompanying figure. Presently multi day's web goes about as a decent correspondence media. Telephonic correspondence media This is a standout amongst the best correspondence media utilized in the correspondence between the specialist organization and the people groups. Through this correspondence media two individuals are collaborated straightforwardly with one another.

It is the most established media of correspondence. Employments of telephonic media are

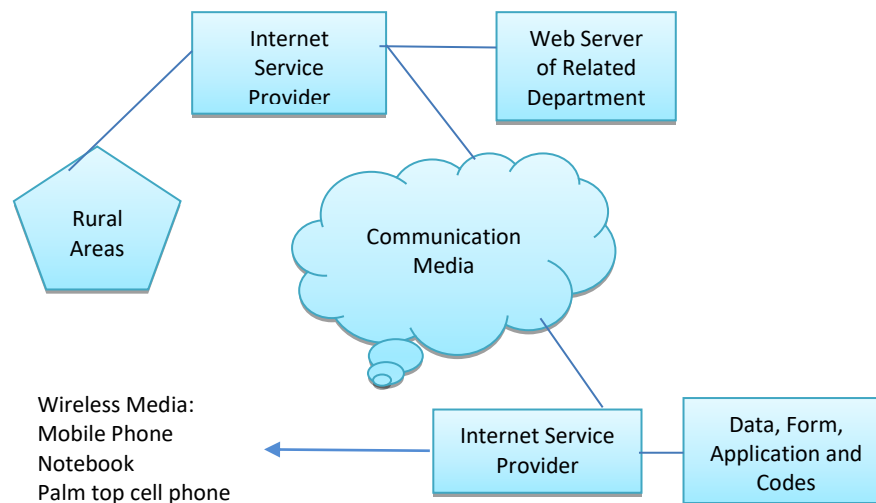
- i. Telephonic and Transport.
- ii. Telephonic and Market Information for Agricultural Products.
- iii. Cell Phones and Emergencies.

Telephonic and Transport Mobile telephones are exceptionally valuable for the course of action of movements and transports for exchanging merchandise to commercial center. This decreases voyaging time and gives higher beneficial time.

Telephonic and Market Information for Agricultural Produce Mobile telephones significantly enhance the entrance of data about the market. So Mobile telephones are likewise gives incredible help when settling on choices for the best time to move the harvests. It additionally removes the broker between rustic rancher and genuine purchaser. So that, issue like getting visited by go between are totally expelled.

Cell Phones and Emergencies Mobile telephones can be utilized to look for help amid critical circumstances or get support amid crises. For instance, a few residents had specialists' and attendants' telephone numbers that were being utilized to look for restorative meeting.

Remote correspondence media Now daily's web is a decent correspondence media however which we can associate with the entire world. Remote correspondence is the least expensive and most secure media of correspondence. By the utilization of remote gadgets we can speak with the system. We get the information pretty much every one of the exercises which we need to perform



**Figure 2.3 Communication Media**

Radio correspondence Previously known as "Radio Farm Forum" it was one of the soonest endeavors in the utilization of radio for provincial advancement. In February 1956 examination was completed for five locale of Maharashtra by All India Radio (AIR). With the goal that individuals in rustic territories tune in to radio communicates and addition different sort of benefit like getting information about market, nation agriculturists and non-agriculturists, town pioneers and others.

Satellite correspondence Satellite Instructional Television Experiment (SITE) is viewed as one of the greatest techno-social correspondences explores in training and rustic improvement. It was right off the bat presented broadcasting guidance and training in India. Satellite technologists called it SITE.

Correspondence Media for Household Income One of the best resources for money age for the country individuals is the correspondence media. On the off chance that correspondence media is built up in the provincial territory, at that point occupants of rustic region can do correspondence business. Model family unit of country region gain cash through moving cell phone related merchandise and enterprises, for example, energize voucher. Cell phones can give both direct (moving cell phone administrations) and aberrant pay (money related and time reserve funds)



## ICT as a Key for Rural Development

Innovation assumes an essential job for creating country territories. This is appeared in figure 2.2 we can say that the financial development absolutely relies on the data and correspondence innovation. By utilization of innovation ranchers or individuals get mindful pretty much every one of the things and profitability increments. On the off chance that the efficiency builds, at that point the monetary development is expanded at a high rate. Every one of the general population in the country zones think about the instruments, materials and cost of the item by the utilization of innovation. On the off chance that individuals know pretty much all the innovation they get most extreme benefit by utilizing them, So that development of provincial advancement increments quickly. Innovation helps in assembling new merchandise and with the utilization of new and most recent advancements; one can make great and alluring foundation. Presently multi day's innovation changes step by step and its utilization assumes an imperative job to enhance the living and mental status.

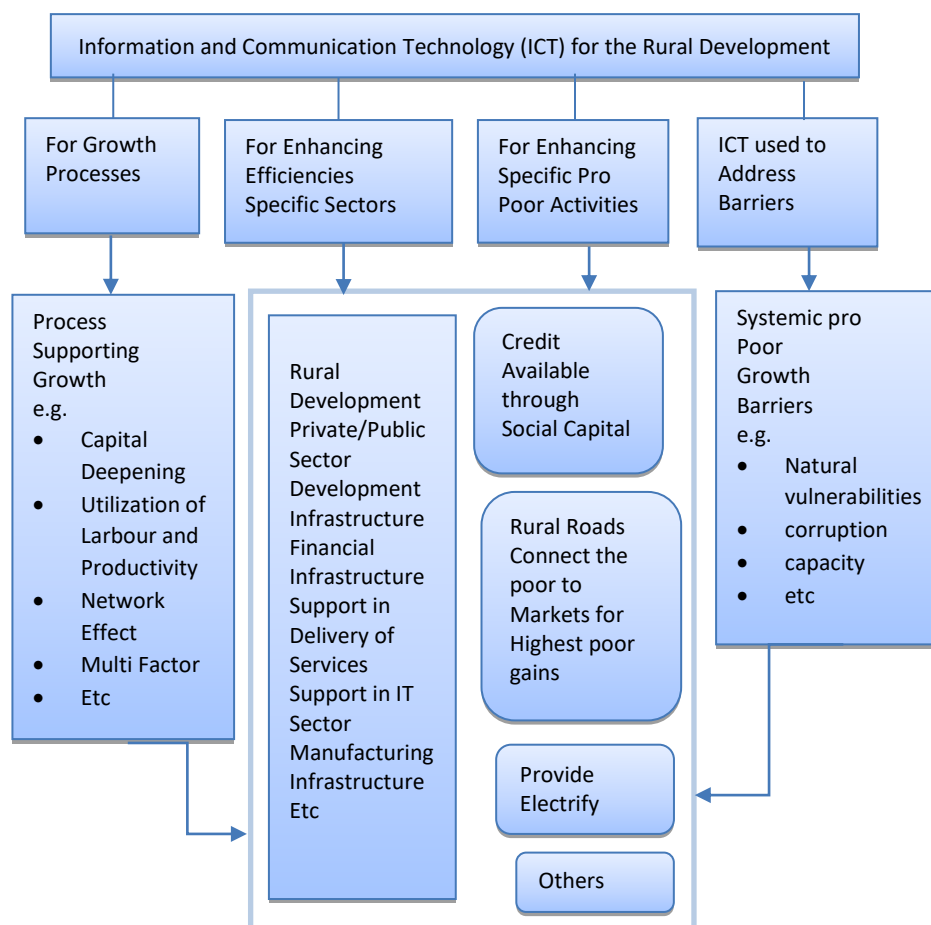


Figure 2.4 ICT as a key for Rural Development

## Initiatives Taken by the Government of India, RBI and Banks to Facilitate Financial Inclusion

The Government of India and the Reserve Bank of India have assumed an essential job in building up banks and money related framework for giving monetary access to the poor, for example, National Bank for Agriculture and Rural Development (NABARD) and Small Industries Development Bank of India (SIDBI). NABARD has planned and built up the SHG-Bank Linkage Program (SBLP) through which it has given INR 25.45 billion to banks covering their loaning to SHGs and around 4.82 million SHGs got credits from keeps money with an exceptional measure of INR 306.27 billion while 7.54 million SHGs have been connected to the managing an account framework as on March 2011. In spite of the

fact that the quantity of SHG's connected with banks have expanded, yet the span of the dispensed credits haven't appeared same pattern and in reality the SBLP had failed to meet expectations in the year 2011-2012. It additionally works the INR 500crore Women SHG's Development Fund proposed by the Union Cabinet 2011-2012 to engage ladies and store their SHG's. Other generally speaking incorporation activities by the Government are Swarnjayanti Gram Swarozgar Yojana (SGSY), National Rural Livelihood Mission (NRLM), The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and Aadhaar. The measures taken by the RBI incorporate No-Frills Accounts (NFA), loosening up Know Your Customer (KYC) standards, giving simple credit offices through Kisan Credit Card (KCC) and General Credit Card (GCC), progression of Bank office development. Through NFA with the end goal of accomplishing the goal of more noteworthy money related consideration, RBI prompted every one of the banks to furnish fundamental saving money account either with 'nil' or exceptionally low least adjusts just as charges that would make such records open to immense segments of populace. In doing as such, the RBI has requested that the banks loosen up the KYC standards. Consequently, KYC strategy for opening records was improved for those records whose adjusts won't surpass INR 50,000 and their yearly getting would not surpass INR 100,000. With the perspective on giving credit offices in the rustic regions, RBI prompted all the Scheduled Caste Banks (SCB's) and Regional Rural banks (RRBs) to acquaint GCC office up with INR 25,000, for their constituents in country and semi-urban territories. Essentially, the RBI additionally acquainted the KCC plot with give convenient credit to the ranchers for the horticultural purposes. 22.49 million Farmers have been given Kisan Credit Cards and 950,000 customers have been furnished with General reason Credit Cards as on March 2011. RBI has likewise prompted the banks to utilize the administrations of NGOs/SHGs/MFIs by giving saving money benefits as BC's. RBI in its October 2009 audit made a further stride in monetary consideration by liberating the standards for opening of branches in towns or towns with populace under 50,000. The Financial Inclusion Technology Fund (FITF) had been set up in 2007-08 according to the proposal of the Rangarajan Committee report with a corpus of Rs. 500 crore each. The targets of FITF has been to upgrade interest in ICT went for advancing money related incorporation, invigorate the exchange of research and innovation in monetary consideration, increment the mechanical ingestion limit of budgetary specialist organizations/clients and energize a domain of advancement and collaboration among the partners.

### **Models**

Incorporation is the way toward getting a circle the left outs and when it goes to Financial Inclusion 'It is the way toward guaranteeing access to budgetary administrations and auspicious and satisfactory credit where required by helpless gatherings, for example, more fragile segments and low salary bunches at a reasonable expense. Understand that an individual with a sensible access to all fundamental budgetary administrations is considered 'monetarily included' and simply one off access to some money related administrations for satisfying the command of monetary consideration does not interpret incorporation in 70%of the grown-up populace of the developing markets is barred from the advantages of Banking, and with regards to India the things are not very extraordinary. India has made huge steps towards more prominent monetary consideration. At this stage, India has been receiving best practices from around the globe that are pertinent and is utilizing the country's inalienable qualities to quicken the progressing endeavors towards more noteworthy money related incorporation—a basic social and monetary basic of the nation.

## 2.3 Financial Inclusion in India in the Recent Context

The procedure of budgetary incorporation has been completed in India in stages. The Nationalization of banks was the initial step taken for the reason enhanced with institutional account. The administration fortified money related conveyance through cooperatives and by nationalizing banks and propelling different imaginative projects for producing independent work and country improvement accordingly the parts of business banks and the RRBs expanded from 8,321 in the year 1969 to 68,282 branches as toward the finish of March 2018. The normal populace per branch office diminished from 64,000 to 16,000 amid a similar period. The second stage centered towards reinforcing the budgetary part through different changes and change in administrative standards amid nineties. The features being Introduction of Self Help Groups (SHG) and bank linkages and Kisan Credit Cards, The center was towards giving credit advantage to the majority. What's more, it swung to be a decent achievement particularly for Women. The present stage for example 2018 onwards has been unequivocally a strategy choice with more prominent accentuation on augmentation and inclusion. Numerous activities are taken by RBI and Government of India to enhance the position.

### 1. Lead Bank System

Under the Scheme, each area had been relegated to various banks (open and private) to go about as a consortium head to organize the endeavors of banks in the region especially in issues like branch development and credit arranging Under the plan it was focused on that all towns over 2000 populace will be given access to money related administrations by March 2012. Towns underneath 2000 populace will be shrouded in an incorporated way. Additionally to give managing an account administrations to whole populace living in Urban and Metro Centers – Urban Financial Inclusion

### 2. Journalist Managing an Account

The Reserve Bank of India had, in January 2006, allowed banks to utilize delegates as Business Facilitators (BFs) or Business Correspondents (BCs) for giving monetary and keeping money administrations. The BCs are permitted to lead managing an account business as specialists of the banks at spots other than the bank premises. For the reason, banks were allowed to use the administrations of non-legislative associations (NGOs/SHGs), small scale account foundations and other common society associations. According to the ongoing standards different classifications of people, kirana shops and so forth and likewise corporate and revenue driven organizations are permitted to end up Business Correspondents' of banks

### 3. Depending on Portable

The versatile entrance is exceptionally high in the nation, to make utilization of the open door the green flag from RBI was given in October 2008 and 32 banks were approved to give the office. Yet at the same time the object of accomplishing money related consideration with the assistance of innovation looks a long ways past the objective. To enhance the circumstance The Financial Inclusion Technology Fund was built up with a general corpus of INR 5000 million to make innovation foundation with thorough credit data. What's more, along these lines, versatile saving money rules were likewise issued by RBI as portable network was idea of as a modest yet solid model to contact the general population.

### 4. Microfinance Model

There is an assortment of small-scale credit models working in India, making it the world's best research center for smaller scale account. The model incorporates Microfinance

framework in India including Self Help Groups.

### **Measurement of Financial Inclusion**

The progress of implementation of FI has to be measured to decide on future policy framework. It is believed that when banks embarked on the formal journey of FI, hardly 40% of Indian adults had savings accounts, with only a small fraction receiving credit from the banking system. Though there is lack of concrete data on the achievement levels, informal data suggest that about 62% of adult Indians are now covered.

India's first FI index was launched in 2013 based on four critical dimensions (i) branch penetration, (ii) deposit penetration, (iii) credit penetration, and (iv) insurance penetration. The last dimension was added for the first time to make the index much more comprehensive. CRISIL Inclusix measures progress on FI down to the level of each of the 666 districts in the country in 2013 (as against 717 now). The index is based on data provided by RBI, the Micro Finance Institutions Network (MFIN), and the Insurance Information Bureau of India.

The index readings for fiscal year (FY) 2015-16 (the latest period for which data are available) show that FI has improved significantly, with the all-India score rising to 58 in FY 2015-16, compared with 50.1 in FY 2012-13. The PMJDY and RBI's steadfast focus on unbanked regions have made a big difference.

As many as 600 million deposit accounts were opened between FY 2012-13 and FY 2015-16, which is twice the number between 2010 and 2013. Nearly a third of this was on account of PMJDY. This gets well reflected in the deposit penetration index of CRISIL Inclusix.

There has also been a sharp incremental rise in number of people availing credit, to 31.7 million. This figure includes loans extended by banks and microfinance institutions together in the two years up to FY 2015-16, which is the highest since FY 2012-13. Notably, microfinance institutions contributed significantly to the financially under-penetrated regions. The Digital India initiative, payment banks, and small finance banks have all helped improve the outreach of formal financial services to economically disadvantaged sections of the populace and geographically remote regions.

### **Comprehensive Growth through Financial Inclusion**

The linkage between money related improvement and financial development has been universally perceived. Money related improvement does not really infer budgetary consideration. It has been seen that even 'very much created' money related frameworks have not prevailing to be 'comprehensive' and certain sections of the populace stay outside the formal budgetary frameworks. This part gives a point by point discourse on the monetary consideration process received by the Government of India from the eleventh Five Year Plan period.

Money related prohibition is regularly the side effect just as the reason for destitution. Henceforth, incorporation turns into a noteworthy pre-essential to neediness mitigation. Money related Inclusion encourages proficient portion of gainful assets and accordingly can conceivably diminish the expense of capital. Monetary Inclusion enhances the everyday administration of accounts, decreases the development of casual wellsprings of acknowledge, (for example, moneylenders) which are regularly observed to be exploitative. It improves effectiveness and welfare of needy individuals by giving roads to verify and safe sparing practices and encourages an entire scope of

productive monetary administrations.

Budgetary Exclusion is disbaring of the impeded and the poor from access to money related administrations. Monetary prohibition is the powerlessness, trouble or hesitance to get to proper, alleged standard, money related administrations. Budgetary rejection is a significant issue and a present strategy concern since it makes monetary issues, for example, avoidance from reasonable advances, leaves individuals who need to get cash with no alternative yet to utilize high-premium credit, absence of protection and investment funds makes families defenseless against money related emergencies following surprising occasions, for example, theft or flooding. An absence of investment funds can prompt destitution in maturity; numerous businesses will just pay compensation into a financial balance, not having a ledger with an immediate charge office rejects individuals from this technique for paying bill. Budgetary rejection strengthens social avoidance. It isn't only an individual issue; an entire network can experience the ill effects of under-interest in monetary administrations. Alternately, money related consideration fundamentally adds to disposal of neediness.

### **Financial Inclusion and Inclusive Growth**

The Eleventh Five Year Plan (2007-12) imagines comprehensive development as its key goal. It characterizes comprehensive development to be 'a development procedure which yields broad based benefits and guarantees correspondence of chance for all'. The comprehensive development infers a fair designation of assets with advantages gathering to each area of the general public. It is gone for neediness decrease, human improvement, wellbeing and gives chance to work and be imaginative. Accomplishing comprehensive development in India is the greatest test as it is hard to bring 600 million individuals living in provincial India into the standard. A standout amongst the most ideal approaches to accomplish comprehensive development is through money related incorporation. There are supply side and request side elements driving comprehensive development. Banks to a great extent are required to moderate the supply side procedures that avoid poor and distraught social gatherings from accessing the money related framework. Aside from the supply side components, request side variables, for example, lower pay as well as resource property likewise have a noteworthy bearing on money related incorporation. Attributable to troubles in getting to formal wellsprings of credit, poor people and little and full scale undertakings generally depend on their own funds or interior sources to put resources into wellbeing, training, lodging and enterprising exercises to make utilization of development openings. Access to budgetary items is obliged by a few elements which incorporate absence of mindfulness about the money related items, high exchange expenses and items which are not advantageous, resolute, not tweaked and of low quality. Budgetary incorporation advances thrift and creates culture of sparing and furthermore empowers effective installment component reinforcing the asset base of the money related organization which benefits the economy as assets end up accessible for productive installment system and designation.

### **Results of Financial Exclusion**

Money related rejection is a genuine worry among low-pay families just as independent companies, for the most part situated in semi-urban and country zones. Results of monetary avoidance will differ contingent upon the nature and degree of administrations denied. Monetary rejection muddled everyday income the board – being monetarily barred the low salary families just as the

miniaturized scale and little undertakings bargain totally in real money and are helpless to sporadic money streams. If there should arise an occurrence of low pay family units, the nonappearance of access to ledgers and other sparing open doors result in absence of funds; low ventures, absence of money related arranging and security for maturity, troubles in gaining admittance to credit or getting credit from casual sources at over the top rates, expanded jobless because of absence of independent work openings, higher frequency of wrongdoing. The independent venture may endure because of loss of access to working class and higher pay customers, higher money dealing with expenses, delays in settlements of cash, loads of dependence on private cash moneylenders for little credits. It might in this manner be reasoned that money related prohibition enlarges the 'Rich-Poor Divide', yet it likewise prompts 'Social Exclusion'.

## **2.4 Business Correspondents and Facilitators**

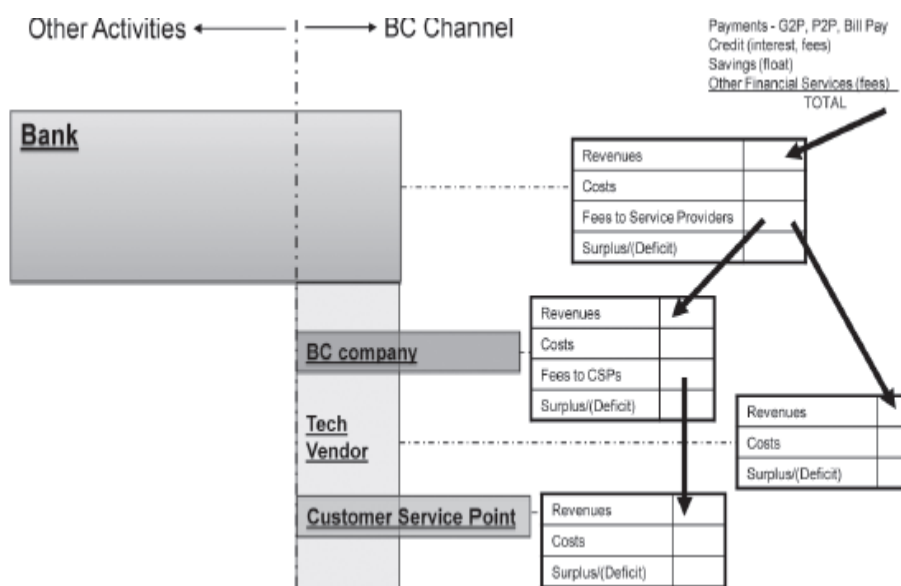
The retreat on the Business Correspondent (BC) show was together composed by the College of Agricultural Banking (C.A.B.), Reserve Bank of India and ACCESS. These endeavors were additionally bolstered by CGAP through its exploration and worldwide learning plan. The retreat tried to share the exercises of the BC story up to this point with the point of quickening further advancement and improvement of the BC demonstrate crosswise over India. More than 50 members went through the day imparting their encounters and insights, at last reasoning that the model could be fruitful; all things considered, much still should have been done to approve its incorporation in the area. The focal topic that rose up out of the session was that the model was still in its underlying phases of selection and that future endeavors would need to focus on organizing changes at the business and administrative dimension if the BC channel was to be made reasonable and productive. The members exhibited their commitment towards making the model work and empowering more noteworthy monetary consideration.

Banks work various channels through which they convey money related administrations branches, ATMs and the web are the conventional channels. The Business Correspondent choice offers another channel through which banks can expand administrations – the rules are written in a way which requires a bank to be included and is a definitive supplier of administrations. While RBI has oversight and administrative duty regarding the BC managing an account channel as a major aspect of its administrative routine, the foremost banks are in charge of the demonstrations of their reporters.

This new channel works through a procedure of coordinated effort by the keep money with at least one accomplice. These accomplices regularly include:

Innovation Vendors-who give a scope of equipment and handling limit and network which can connect customers to BCs and BCs to the bank. Business Correspondents-which are associations or people that compose and offer at least one points of exchange outside of bank offices. The BCs compose and deal with a system of such exchange focuses in organization with a bank.

Client Service Point-are people, shops or other outlet focuses which are in charge of the immediate contact with the customers. CSPs open financial balances, direct KYC, money out withdrawals, get installments and now and again, broaden credit.



**Figure 2.6 Channel Basics Revenue Flow**

For the channel to end up monetarily feasible, controls necessitate that all income from the administrations be gathered by the bank. The Tech Vendors, BCs and CSPs are not allowed to charge expenses to customers for the administrations. The bank's income may originate from the augmentation of administrations accounts, investment funds, credit and installments. The Bank under legally binding connections at that point makes installment of administration charges to the BCs and Technology Vendors.

All together for the BC Channel to work the bank must work in A joint effort with a few or the majority of the distinctive segment accomplices who make up the BC Banking channel. It is surely knew that all the constituent bits of the channel should work pair, be propelled to take an interest and get fitting incomes all together for the channel to develop and succeed. While there are numerous courses of action which are as of now being tried, there is no single effective methodology.

### **Advantages of Using BCs**

A portion of the points of interest in utilizing BCs as rattled off by different banks may be

- 1. A Superior Option than Bank Branches**

Normally a rustic bank office can serve 3,000 to 4,000 families in 12 to 15 towns inside a span of 15kms. A Public Sector Bank office may require over 5 years to breakeven in unbanked territories in India, while a private segment and remote manage an account with IT network may require around multiple times more. Further, acquiring consent to open a branch is a long and extended procedure. The BC alternative conceivably empowers banks to connect a lot quicker and at a much lower cost.

- 2. Coming to the Unreached**

The model empowers banks to stretch out money related administrations to the unreached customers past their branch arrange as recipients of the BCs are for the most part situated at unbanked and under kept money territories.

- 3. Doorstep Managing an Account**

Disbursement and credit recuperation at the doorsteps of the recipient.

#### **4. Better Nature of Benefits**

Target customers are outstanding to neighborhood NGOs, Post Offices, BDOs and comparable nearby social bodies, consequently advance assistance by the NGOs/BCs (who are the advertiser/developer of the gatherings) upgrades nature of advantages. Scaling up of this model is conceivable inside a limited ability to focus time.

#### **Difficulties to the BC Model from the Bank's Perspective**

Every one of the banks revealed numerous operational issues/dangers, feasibility issues and administrative worries in utilizing BCs for keeping money administrations. These were

##### **1. Operational Issues**

Money taking care of - Allowing BCs to deal with money is the greatest test. Ninety-nine percent of the monetary exchanges are in real money, justifying staggering expense money taking care of tasks and included operational dangers. Besides, customers will in general see that the BCs are the proprietors of the exchanges and not encouraging them for the banks' sake.

Sporadic bookkeeping - Irregularities have been seen in bookkeeping of customers' withdrawals and stores by BCs and subsequently there are delays in bookkeeping the managing an account exchanges with the Bank by the BC.

Guileless customer profile - Recipients of BC benefits are for the most part unskilled and new to innovation rendering them helpless to misguidance by the BCs.

Extortion and Misappropriation - Since the BCs' staff work exclusively with no line supervision, the danger of misrepresentation and misappropriation is higher. There have been occurrences noted of miscommunication by BCs. Inability to represent money and misrepresentation of records have been seen and managed by banks.

##### **2. Reasonability Issues**

Dormant 'Straightforward Accounts- most of No Frill Accounts opened by BCs are not operational. In a few areas that have accomplished 100% money related consideration, the records being used have been under 25%. The normal adjusts in investment accounts have been low at unviable dimensions for banks.

Demonstrate Viability - There's a deficiency of subsidizing to BCs for meeting the gathering advancement costs on account of SHG-Bank linkage models. Likewise, there are money related limitations with respect to the BCs for limit building activities, for example, putting resources into preparing for their staff.

BCs losing cash - Initial misfortunes are driving numerous BCs to close their tasks. Business congruity chance in such cases is affecting banks antagonistically. The time has come expending, exorbitant and insufficient for banks to substitute these BCs with new participants.

##### **3. Administrative Concerns**

- **Premium Capping**

Reaching unbanked regions warrants higher conveyance costs and the rate top doesn't enable much space for banks to recuperate the costs important to stretch out credit to difficult to-achieve territories and in little sums.

- **Separation Criteria**

Banks don't generally think that its simple to get administration territory waivers from District-level Committees which are important to work in specific territories. Various



solicitations are pending for endorsement and numerous solicitations have been rejected with no clarification.

- **Money Repayment**

Current directions command BCs to finish bookkeeping and settle money with bank offices inside 24 hours of exchange. Given the zone of activity of BCs - country zones with openness issues - making settlements inside a recommended time allotment have turned into a test. Distinctive BC Approaches

### **BC Approaches being tried in India can Generally be Categorized into Three Separate Buckets**

#### **1. Securing and Transactions Platform**

Banks contract the administrations of a BC organization (and related Technology Vendor) to open savvy card put together No Frills sparing records with respect to a vast scale. Sometimes, NREGS and other government installments are exchanged through these records. The biggest investigations incorporate Zero Mass (with A Little World), Fintech Foundation (with FINO), and Indian Grameen Services (an individual from the Basix gathering). This methodology involves vast scale opening of new records for banks. Whenever joined, these endeavors have encouraged the opening of a few million records over the most recent two years; notwithstanding, the consequent exchanges on these records have been insignificant to date.

#### **2. NGOs/MFIs**

Various NGO-MFIs have selected as BCs to offer credit, reserve funds, protection and settlement administrations. Under this methodology the MFI looks to offer extra administrations over what it as of now offers (frequently expanding new reserve funds benefits notwithstanding the as of now given credit). Given the generally little size of activities of not-revenue driven MFIs in India, this classification of BC analyze has been on the moderately littler scale as far as quantities of customers came to. Note that the biggest MFIs are revenue driven NBFCs and are in this manner not allowed by direction right now to be utilized as BCs by banks.

#### **3. Committed Bank Channel**

In a remarkable case, close collaboration exists between Indian Grameen Services and KBS Local Area Bank whereby the BC (IGS) fills in as an administration expansion point doing endorsing, deals and exchanges – a semi branch. This extraordinary test offers a case of what should be possible when a bank sees the BC as a focal piece of its methodology. In light of the data on money related exchanges given by banks, this is the main known BC try where the BC channel apparently is beneficial.

### **2.5 Banking Business Correspondents**

Business correspondents are bank representatives. They help villagers to open bank accounts. Business Correspondents get commission from bank for every new account opening, every transaction made via them, every loan-application processed etc. The Business Correspondent carries a mobile device and helps villagers in banking transactions. (Deposit money, take money out of savings account, loans etc.). The villager gives his thumb impression or electronic signature, and gets the money.

#### **Who/What is Business Correspondent?**

- Business correspondents are bank representatives.
- They help villagers to open bank accounts.

- They help villagers in banking transactions. (deposit money, take money out of savings account, loans etc.)
- The Business Correspondent carries a mobile device.
- The villagers give his thumb impression or electronic signature, and get the money.
- Business Correspondents get commission from bank for every new account opened, every transaction made via them, every loan-application processed etc.

**Table 2.2 Business Correspondent for Banks**

1. Non-Governmental Organizations (NGOs)	1. farmers' clubs
2. Self Help Groups (SHGs),	2. Community based organizations
3. Micro Finance Institutions (MFIs)	3. Cooperatives societies
4. Post Offices	4. Village Knowledge Centers,
5. Insurance agents	5. Agri Clinics/ Agri Business Centers,
6. Panchayats	6. Krishi Vigyan Kendras
7. Civil Society Organizations (CSOs)	7. Khadi and Village Industries units
	8. corporate entities with IT outlets in rural parts.

### The Progress of FI and BC Model Over the Years

With Financial Inclusion and Business Correspondent model, the presence of Indian banks has certainly expanded. People have been realizing the importance of savings, taking small-scale loans, depositing cash into bank accounts and doing lots more. This has increased transparency and has helped banks build trust amongst vulnerable groups. Banking products and services are now better understood by masses and thus there has been a significant growth in the opportunities to cross-sell.

**Table 2.3 Take a Look at These Statistics on FI and BC**

Parameter	March '10	March '16	March '17
Number of Bank branches in villages	33,378	51,830	50,860
Number of Business Correspondents (BCs)	34,174	531,229	543,472
Number of other forms of banking touch points	142	3,248	3,761
Number of Basic Savings Bank Deposit Account (no minimum balance, no charges levied) (in millions)	73	469	533

Source RBI Annual Report (2016-17)

### Recent Banking Correspondents Initiatives Towards Business Correspondents

#### 1. Swabhimaan

- Initiative by the Finance Ministry of Indian Banks' Association launched in 2011
- To connect financial hole among rustic and urban India.

### **Objectives of Swabhimaan**

- Make managing an account offices accessible to each environment with a populace >2000 (by March 2012.)
- Banks will give fundamental administrations like stores, withdrawal, Kisan Credit Card (KCCs) and so on by means of Business Correspondents (BCs) otherwise called Bank Saathi.
- Banks will likewise cooperating with the Unique Identification Authority of India (UIDAI) for opening new financial balances.
- Government will send endowments and standardized savings benefits (annuity and so on.) straightforwardly to recipient's record.
- Beneficiary can pull back the cash from the Business Correspondents (BCs) in their town itself.
- Government has given 500 million rupees to banks for taking these initiatives.(e.g. paying Commissions to Bank Saathi, their preparation cost, doing desk work with UID)

### **Brick and Mortar Branches**

Business Correspondents can work for a village with a population of 2,000 for which there is a brick and mortar branch with at least three or four staff. Assuming an average family size of five in such villages, there might be 400 families who can potentially open bank accounts. A brick and mortar branch in a village of 2,000 population may have at least 400 deposit accounts if each family opens only one account. Assuming that some families have more than one account, such deposit accounts may go up to, say 800.

For a BC to provide basic banking services effectively, deposit accounts should not exceed 500. Even ultra-small branches, where an officer from a base branch occasionally visits the rural area, are not working well where deposit accounts are more than 800.

The commission-based BC model is not working well for the banking system, unlike for other financial services. All ultra-small branches with a BC model with more than 1,000 accounts may be immediately converted into brick and mortar branches. Alternatively, for every 1,000 Jan-Dhan accounts in a locality, there should be a physical branch. Accounts from multiple banks may be shifted to the bank ready to open a brick and mortar branch to serve 1,000 such account holders. This exercise can be undertaken by the State-Level Bankers' Committee.

The Government should pool all resources under several rural development schemes and provide a scheme-based permanent source of income through gainful employment to the rural people. Although, schemes may vary from state-to-state based on availability of natural resources, non-farm activities like construction of roads, electrification, and warehousing, healthcare, irrigation would provide a constant source of income and make the financial inclusion truly demand-driven.

### **Reforms in BC Model**

#### **Common BC**

- Last year Finance ministry came up with this proposal
- India be divided into 20 clusters.
- A common BC be appointed for all public sector banks operating in that geography.
- Such a move would improve the economics of the BC model.

- Reserve Bank of India (RBI) has permitted all business correspondents (BCs) working for one particular bank, to conduct business for other banks as well.
- FINO, India's largest Business Correspondents company
- FINO - Financial Inclusion Network and Operations (FINO).
- It is promoted by various Public and Private sector banks and insurance companies like LIC.
- Last year, FINO become the common Business Correspondents' company for all public sector banks operating in Jharkhand.

**Table 2.4 MNREGA Payment**

<b>Old System</b>	<b>New System</b>
<ol style="list-style-type: none"> <li>1. A villager earns some cash under MNREGA.</li> <li>2. Government gives cash to bank.</li> <li>3. Bank gives it to B.C.</li> <li>4. B.C. deposits it into MNREGA worker's account.</li> </ol>	<ol style="list-style-type: none"> <li>1. All accounts will be maintained by core banking system.</li> <li>2. So, cash directly goes from Government Bank MNREGA worker's bank account.</li> <li>3. Villagers will have the freedom to make their withdrawals from any BC they choose.</li> </ol>

### **Kiosk Banking**

- The D.I.Y. (Do it without anyone else's help) keeping money administrations for example ATM, web booths
- There is likewise absence of training + mindfulness in country zones about such things.
- So regardless of whether Government/bank introduces such programmed ATM, web kiosks, more often than not they simply assemble dust.
- Therefore, innovation based 'self-administration' show (e.g ATM, web booths) isn't valuable at this stage.
- And subsequently we need Personnel (these Business Correspondents=middlemen). Since frequently residents are uneducated, so they can't top off the structures for opening financial balances or credit application or filling the store slips and so on. Business Correspondents are fundamental at this stage.
- But again issue The expense per exchange stays high

In November 2012, Mohan declared Direct Cash exchange plot. (Will be shrouded in detail, later). Anyways, under Direct Cash exchange plot, Government will specifically store installments, sponsorships, grants, annuities and so forth into the recipient's financial balance. There are around six lakh towns in India, and in spite of all these money related incorporation activities still just 75,000 towns have a bank office or business reporter specialists (BCA). So for the destitute individuals in remaining 525000 towns still face the issues we saw' in MNREGA installment withdrawal, So Direct Cash Transfer will be EPICFAIL except if every single town is secured under managing account administrations.

### **Summary**

Without a doubt the issue of extending the geographical and statistic achieve presents difficulties from

the reasonability/maintainability points of view and suitable plans of action are as yet developing and different conveyance instruments are being tried different things with by the different government offices at the focal and state level. In any case, some place the endeavors taken are bad enough to experience this amazing issue of monetary rejection. Monetary proficiency and dimension of mindfulness keep on outstanding an issue as to utilization of monetary administrations/items. It calls for coordination of all the partners like sectoral controllers, banks, governments, common social orders, NGOs, and so forth to accomplish the target of monetary consideration. Difficulties of money related avoidance are looked by the greater part of the conditions of the nation and so as to settle it States' need to build up its very own modified arrangements drawing upon its very own encounters and include those of its friends over the nation.

### Useful Links

- [www.microlinks.org](http://www.microlinks.org)
- [www.seepnetwork.org](http://www.seepnetwork.org)
- [www.socialfunds.com](http://www.socialfunds.com)

### Model Questions

1. Explain the importance of ICT in rural banking.
2. Discuss the role of business facilitators in rural financing
3. Explain the models of financial inclusion.
4. Discuss the features of financial inclusion.
5. What is the role of MUDRA under PMMY Loans?

### To Do Activity

- To conduct survey on the information about Information and Communication Technology support to rural finance
- Use the few worldwide Micro finance Network organization who supports the ICT development in connection with financial inclusion.

# Chapter 3 Problems and Prospects in Rural Banking

## Introduction

Exercises of present day economy are fundamentally affected by the capacities and administrations of banks. Keeping money area establishes the center piece of financial framework. Indian economy is rural economy and genuine India lies in towns. Town economy is the foundation of Indian economy. Indeed, even following 60 years of autonomy, the rustic economy in India is as yet disabled as far as framework and other ceaseless issues of cultivators. Truth be told, monetary advancement and mechanical improvement are dictated by the rustic area. Over 70% of Indians rely upon horticulture; 60% of enterprises are agro based; half of national pay is contributed by rustic division and the farming part is the biggest outside trade worker to India. Such a fundamental and key division is dismissed by money related organizations and particularly by the banks. Rustic improvement involves a noteworthy spot in the generally monetary advancement of the nation.

## Objectives

This chapter will enable you to develop an understanding of the following.

- Problems of Rural Branches of Commercial Banks
- Risk Costs
- Emerging Trends in rural Banking
- Financing for Poor

3.1 Introduction - Problems of Rural Branches of Commercial Banks

3.2 Importance of Rural Branches

3.3 Transaction and Risk Costs

3.4 Emerging Trends in rural Banking

3.5 Financing Poor

### 3.1 Problems of Rural Branches of Commercial Banks

Gandhi focused on a country character of economy and the requirement for re-age of provincial life. Since autonomy, it has been consistent endower of our strategy creator to give satisfactory trust to provincial advancement as the area is straightforwardly identified with agribusiness. Country managing an account in India began since the foundation of saving money segment in India. Country Banks in those days for the most part engaged upon the agro area. Provincial rustic banks in India

entered each side of the nation and broadened some assistance in the development procedure of the nation. SBI has 30 Regional Rural Banks in India known as RRBs. The provincial bank of SBI is spread in 13 states reaching out from Kashmir to Karnataka and Himachal Pradesh to North East. The complete number of SBIs Regional Rural Banks in India branches is 2349 (16%). Till date in provincial keeping money in India, there are 14,475 rustic banks in the nation of which 2126 (91%) are situated in remote country territories.

Territorial Rural Banks (RRBs) was built up under the arrangements of a statute declared on the 26th September 1975 and the RRBs Act, 1976 with a goal to guarantee adequate institutional credit for horticulture and other rustic divisions. The RRBs assemble monetary assets from rustic/semi-urban territories and concede advances and advances for the most part to little and peripheral ranchers, rural workers and provincial craftsmen. The region of activity of RRBs is constrained to the region as told by Government of India (Gol) covering at least one regions in the State. RRBs are mutually claimed by Gol, the concerned State Government and Sponsor Banks (27 planned business banks and one State Cooperative Bank); the issued capital of a RRB is shared by the proprietors in the extent of half, 15% and 35% separately. The examination of the working of Regional Rural Banks plainly demonstrates that Regional Rural Banks experience the ill effects of various issues and disadvantages which have made various troubles as well, but their execution has been very critical in the field of provincial credit and rustic improvement.

### **Problems in Rural Branches of CB**

#### **1. Haste and Lack of Co-appointment in Branch Expansion**

Flurry in branch extension program by and large has brought about disproportion because of absence of co-appointment. In a few cases, it couldn't be guaranteed that the parts of the RRBs are opened at focuses where no business or co-agent saving money offices were given.

#### **2. Challenges in Deposit Mobilization**

The RRBs experienced various commonsense troubles in store preparation. Because of their prohibitive loaning arrangement which rejects more extravagant segments of the town society, these potential investors show least enthusiasm for keeping their cash with these banks.

#### **3. Imperatives in Deposit Mobilization**

The RRBs avoid the more extravagant areas of the town society in giving direct money related help. These areas have potential reserve funds to store. Be that as it may, they are least keen on saving them with the RRBs in perspective on the prohibitive credit strategy of these banks. Further, state and neighborhood governments and their offices likewise have not co-worked much by keeping up their store accounts with the RRBs. In short, the RRBs have neglected to assemble accounts inside themselves.

#### **4. Moderate Progress in Lending Activity**

The RRBs' pace of development in credit business is moderate. For this the accompanying reasons might be given (i) There have been restricted extension for direct loaning by RRBs in their fields of tasks; (ii) It is constantly hard to recognize the potential little borrowers and the bank staff have been required to endeavor uncommon and earnest endeavors in such manner; (iii) Most of the little borrowers don't care for the bank customs and want to get from the casual/indigenous wellsprings of fund, for example, money lenders; (iv) The irregularities in the Differential Interest Rate (DIR) Scheme likewise represented a unique

issue to the RRBs. While the RRBs charge 14 percent premium, the business banks charge just 4 percent under the DIR Scheme in provincial territories.

In this manner, no borrower would go to RRBs or co-agent social orders in the zone when an advance from the business bank is accessible under the DIR Scheme; (v) There is no powerful connection between the RRBs and PACS and the agriculturists' administration social orders; (vi) There is absence of co-appointment between authorities of the locale credit arranging advisory groups and the RRBs.

### **Urban-Orientation of Staff**

A critical functional trouble experienced in their working by the RRBs is the urban introduction of their staff which is once in a while slanted to serve in rustic zones. There is no obvious neighborhood association of the bank staff in the town where they serve.

### **Procedural Rigidities**

The RRBs pursue the techniques of the booked business banks in the matter of stores and propelling credits which are very confounded and tedious from the locals' perspective. The country borrowers dependably acknowledge casual ways and straightforward methods as have been trailed by the cash loan specialists and the indigenous financiers.

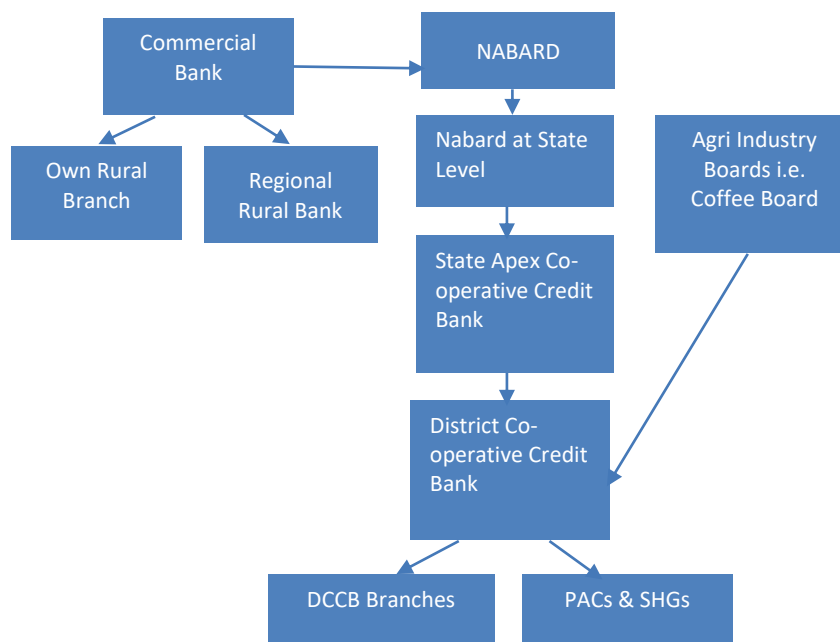
### **Rural Banking the Indian Landscape**

“Financial Inclusion” and “Rural Banking” are frequently utilized conversely to signify the order of achieving budgetary administrations to the enormous unbanked masses of provincial India. As a result, the previous is a system or, as NABARD characterizes it, a procedure, while the last indicates a worldview and style of saving money. A provincial bank, while basically a vehicle of money related incorporation, exists exclusively to support the particular monetary necessities of a people that make due on cultivating and creature farming in Indian towns. In a social sense, a country bank enters the day by day lives of its clients and turns into an accomplice in their prosperity and trouble. It might add on administrations in light of movements in statistic designs - for instance, encouraging installments to and from agriculturists' relatives contemplating and working in urban areas. It might take broad response to innovation to cut expenses, to stretch out effort and to enhance forms - portable keeping money, bank-in-a-booth, biometric ATMs and smartcards all being genuine models. In any case, its targets, business lines and style are constantly characterized by the unconventional financing necessities of agriculturists, by harvest cycles, by the ideas of climate and via regular occasions like celebrations. The conventional keeping money framework, the frameworks and systems of which are really intended for the urban mechanical and business financing, has constraints in connecting with the last mile. That is the hole that the country saving money framework addresses. The main expressed goal of country banks in India is to achieve opportune credit, at terms managed by social contemplations instead of monetary ones, to destitute agriculturists, so they don't succumb to the plans of deceitful moneylenders. As the graph beneath shows, this point is as yet far from being accomplished. Incredibly, the greater part of Indian rancher family units, for the most part tenant farmers and peripheral agriculturists, are outside the ambit of any sort of monetary administrations - formal or casual!

**Reaching out to the Target Market** In a multi-office way to deal with location the requirement for giving rustic credit, different foundations and courses have been set up by the Government of India,



to a great extent through enactment. Coming up next is a schematic perspective on the stream of assets through these conductors. The view is more characteristic than complete and different players and channels do exist. For instance, an adequately vast self improvement gathering (SHG) might be subsidized straightforwardly by the state-level NABARD. Likewise, Nonbanking Finance Companies (NBFCs) and different associations occupied with smaller scale fund have not been appeared in the view. Aside from approaching assets through the channels appeared as follows, the players' fund their loaning by taking stores or potentially depending on business borrowings and security issuances.



**Figure 3.1 The Route the Funds Take**

### 3.2 Importance of Rural Branches

The commercial banking industry has been changing rapidly over the past three decades. Changes have occurred in the structure of the industry as well as innovations in the delivery of financial services to individuals and firms. There are continued concerns that the changing landscape and the newer regulatory environment could impact niche banks and banks operating in rural areas.

Innovations in mobile and electronic banking in addition to access points provided through the more than 2.2 million automated teller machines around the world have increased the opportunities for some financial services to be delivered remotely.

Strong lender-borrower are prevalent in agricultural lending and the delivery of financial services in rural areas. Rural banks have traditionally supported local economic development and growth by supplying funds to local businesses. Consolidation across the banking industry often raises concerns about the delivery of financial services to agriculture and rural businesses. The willingness and ability of commercial banks to deliver agricultural and rural loans efficiently will play an important role in maintaining and expanding rural economies.

## Branch Expansion

### 1. Physical Branches

The penetration of banking in India is low compared to developed nations, which is evident from the presence of 5.40 lakh unbanked villages across the country. Branch banking continues to play significant role in business development despite increased adoption of Alternate Delivery Channels in the recent years. The road map of Indian Banks clearly indicates that BC model is going to be used in a big way to achieve the financial inclusion objective. However, banks need to open more number of brick and mortar branches especially in unbanked centers to cover the large population on one hand and branch network acts as service branch to route the transactions undertaken by BCs. Hence, branch network continued to grow in the ensuing years also.

### 2. Ultra Small Branches (Mobile Branches)

As part of liberalized Branch Authorization policy, RBI has granted general permission to domestic scheduled commercial banks to open satellite branches in unbanked areas where the population is below 50,000. It envisages the extension of banking facilities through one or two dedicated staff members who visit the identified village location on specified days. It is a cost effective model compared to physical branch model. A designated officer of the link branch shall visit the village on a prefixed date and time every week with a laptop with Virtual Private Network (VPS) connectivity to Core Banking Platform. The role of the visiting official is authorization of the accounts, balance enquiry, printing of account statements and recovery. However, the normal cash transactions will be done by the BC agent only.

### 3. Branch-in-a-Box

It is primarily a cost-effective, relocatable and pre-fabricated bank branch. It uses modern, broadband satellite technology for communication. This enhances customer convenience as it provides speedy access. It can also be used to test new markets, especially in areas with limited infrastructure where banking services are not readily available. It provides full transaction facilities to customers, including cash withdrawals and deposits, sales and service.

## Reasons for Unprofitable of Rural Banking in India High Non-Performing Loans (NPL)

Banks have higher non-performing credits in rustic zones on the grounds that provincial family units have sporadic pay and use designs. The issue is exacerbated by the reliance of the rustic economy on rainstorm, and credit waivers driven by political motivation. NPLs from the farming segment are 7.7%, contrasted with 3.5% crosswise over non-agribusiness segments. With the end goal for banks to see provincial India as a development opportunity, as opposed to an administrative prerequisite, a mix of these issues must be tended to. Expanding money related access to rustic zones is dependent upon fundamental conditions, for example, legitimate foundation and an empowering administrative structure, just as creative reasoning with respect to business banks. Access issues, be that as it may, clarify just a single piece of the issue. Use is a similarly imperative issue for provincial clients.

- 1. Low Ticket Size** The normal ticket size of both a store exchange and a credit exchange in provincial territories is little. This implies banks need more clients per branch or channel to earn back the original investment. Considering the little catchments region of a branch in country regions, creating a client base with minimum amount is testing.
- 2. High Cost to Serve** Branches are the most utilized divert in provincial zones. This is on the

grounds that numerous rustic individuals are not educated and are not happy with utilizing innovation driven channels, for example, ATMs, telephone keeping money or web managing an account. Then again, a branch is a costly channel for banks. What is more provincial is, individuals, at whatever point they approach banks, have to visit low ticket and money based exchanges, which increment the general exchange cost for their bank.

3. **Higher Risk of Credit** Country family units may have exceptionally sporadic and unpredictable salary streams. Sporadic pay work and the closeout of agrarian items are the two fundamental wellsprings of salary for rustic families. The poor rustic family units (landless and peripheral ranchers) are especially subject to sporadic compensation work. Rustic family units additionally have unpredictable use designs. The run of the mill use profile of rustic family units is little, with day by day or unpredictable costs acquired as the month progressed. Moreover, a lion's share of family units bring about something like one unscheduled consumption for every year, with the most incessant reasons being restorative or social crisis. To put it plainly, the provincial client is commonly viewed as a dangerous one.
4. **Issues and Challenges** Regardless of whether access to formal managing an account is given to rustic clients, there is no assurance that these administrations will be utilized. As indicated by an examination directed by the World Bank, numerous family units, even in created nations, decide not to have a ledger as they don't take part in numerous monetary exchanges, they gather compensation in real money, spend in real money and don't wish to be troubled by a financial balance. To intensify the circumstance numerous clients in rustic India, who approach and would some way or another utilization formal monetary administration, don't do as such on the grounds that the item and administration blends don't address their issues. The budgetary administration needs of rustic clients are not restricted to simply investment funds and credit, as is generally accepted. Their money related necessities are connected to their life cycle needs, extending from investment funds to credit to protection to settlements. Indeed, even the funds and credit items right now offered to provincial clients don't completely address their issues.

Access to funds and speculation offices is basic for poor people. The two basic requirements for the country poor are small scale reserve funds and successive withdrawals. These requirements encourage a client in building capital over the long haul, just as adapting to pay stuns in the close term. Nonetheless, banks don't offer satisfactory administrations to address these necessities. The absence of administrations, subsequently, leaves the rustic poor with little choice than to execute with the casual saving money showcase. An examination directed by Micro Save likewise reasons that the poor execute with the casual division since it will acknowledge little sums, give doorstep administration, and guarantee simplicity of enrolment. Country clients need credits for gainful purposes as well as for utilization needs. A section from farming help, provincial clients need miniaturized scale credit for utilization, instruction and crises. Despite the fact that banks offer reason free advances (individual advances and Visas) in urban territories generously, in rustic zones assent of such advances is essentially confined. In this way, the poor raise these advances through the casual budgetary framework (it is important that these credits taken from the casual framework are quite often reimbursed or renewed. Likewise, bigger families need infrequent high esteem smaller scale venture advances for little capital speculation. Despite the fact that banks offer these credits, they require inordinate documentation and tedious

procedures which dishearten client applications.

5. **Insurance** decreases the powerlessness of poor family units by supplanting the questionable prospect of extensive misfortunes with the assurance of payout against little, ordinary premium installments. It is indispensable to a far reaching hazard the board procedure for poor families. This incorporates life, wellbeing, mishap and resource (abiding, harvest, and animals) protection. Banks and protection firms don't offer these administrations in numerous country territories, driving the poor to depend on the casual money related framework. There are numerous rustic families which rely upon week by week or month to month settlements from their relatives who have moved to urban zones. At present, they rely upon casual channels to transmit the cash and thus either hazard the loss of cash or pay high exchange charges. Banks don't offer consistent settlement offices among urban and country branches the same number of the provincial branches are not automated and associated with the principle bank's PC frameworks. This frequently results in the recipient accepting the sum two weeks after it has being exchanged. This speaks to one more key administration which isn't given.

The exchange cost for a rustic client to get credit essentially establishes four properties the financing cost, advance sum got as a level of sum connected, influences paid, and the lead time to process the advance. Despite the fact that the formal managing an account framework offers advances at financing costs lower than casual keeping money frameworks, the time taken for an advance to be authorized is high which builds vulnerability and opportunity cost. Furthermore, the client needs to pay practically 10% of the advance sum in fixes and in the long run gets a sum that is not as much as what was connected for. Subsequently, while the loan costs are usurious in the casual financing framework, provincial clients still hotel to this channel in light of the fact that the holding up time to get the credit is irrelevant and there are no roundabout expenses or commission. Banks additionally demand insurance security which numerous country poor can't bear. To the extent reserve funds are concerned, however the formal saving money framework gives monetary security, the expense of opening and working a record is high. The general expense of executing with the formal budgetary framework increments for a rustic individual in light of extra costs, for example, costs acquired to achieve a branch and the open door cost of lost wages. Since rustic banks are commonly not inside an open region and don't work at advantageous occasions, the country client must do without a day's compensation to achieve a branch. Casual frameworks, then again, include a lower exchange cost, yet they are hazardous and now and again result in the loss of one's whole capital. To put it plainly, this leaves the rustic client to pick between two horrible alternatives.

### 3.3 Transaction and Risk Cost

An adjustment in conveyance component combined with sharing of innovation driven assets stage, upgrading opportunity on deciding loan costs to monetary specialist organizations, use of client inviting protection plans and intercession of Government by loaning budgetary help if there should be an occurrence of common cataclysms could trigger quick development of agrarian loaning at market driven rates. We feel that exchange cost could be kept low by receiving innovation based stage.

## 1. Automation

One of the imperative purposes behind the disappointment of numerous suppliers of provincial fund has been their powerlessness to appropriately deal with their activities in a practical way. Computerization through the formation of a Banking Platform that offers its administrations to co-agent banks, provincial country banks and planned business bets on an Application Services Provider (ASP) premise would be financially savvy and will be very much overseen by experts. While a couple of Rural Financial Institutions (RFIs) in India have developed to scale however independently, none of the RFIs have assets to put resources into improvement of extraordinary programming or frameworks for their selective use, as this would include high forthright expenses, regardless of whether it were proportional its activities broadly. In the in the meantime, the absence of productive frameworks goes about as an obstacle to development. Consequently, making of a sectoral IT asset for RFIs presents itself as the most useful arrangement. Such a sectoral asset could be shared crosswise over RFIs, in this manner enhancing their ability to scale up as far as reach and range. The regular arrangement would furnish RFIs with a prepared stage to accomplish sensible size and scale without bringing about substantial capital consumption.

There are various instances of managing an account framework receiving this methodology with the goal that an ease and generally quick relocation to fantastic saving money frameworks can happen. FINO has been worked as a stage to give precisely these administrations to Rural Financial Institutions (RFIs) and is as of now during the time spent being taken off to three unique sorts of RFIs including a co-agent bank, one planned business bank's rustic activities and a non-bank money organization working as a moneylender in country India. The mechanization exertion being attempted by FINO joins the advantages of the card stage grew before as a multi-account charge card and various new and existing Point-of-Sale (POS) terminals to guarantee that card-holders can get to a full suite of high caliber money related administrations even from little RFIs. Essentially, town based exchange point for adjusting the monetary needs of poor people could be made. In any case, if this channel is set up principally to convey the monetary administrations, the expenses of serving the customers will be restrictive. There is a requirement for a mutual administrations organize that can recuperate the adjusting costs over different applications. Web based booths can be one such exchange point. Such a station can give e-administration applications, horticulture augmentation administrations, Internet network, telemedicine and wellbeing diagnostics lab, crop diagnostics, training and excitement, enrollment/business focus and monetary administrations like life and medical coverage. Through these one-stop shops buyers in even remote parts of the nation can take an interest in the standard monetary movement at low expenses.

## 2. Interests in POS and Digital Money Infrastructure and Fiscal Incentives

For Movement far from Cash and Check on a System Wide Basis Research by McKinsey recommends that it isn't the quantity of individuals or the quantity of branches that are the drivers of staggering expenses in a budgetary framework. Development far from money towards computerized cash holds the way to forcefully bringing down the exchanges costs related with provincial fund and furthermore permits the enhancement of data the executives. The current monetary structure tries to impose the utilization of cards along these lines making it progressively alluring to remain with money as the primary methods for trading

esteem. On the off chance that, rather, as on account of South Korea solid motivations were given on all exchanges that occur without the utilization of money, the reserve funds on exchanges expenses would be very substantial. FINO (Financial Innovations and Network Operations) has built up the ability to issue Biometric Debit Cards and Smart Cards yet would require a national framework of Point of Sale (POS) Terminals at different deals areas that can peruse these cards and transmit the data to FINO's focal database. While FINO is endeavoring to grow monetarily self-financing methods for setting up these POS Terminals, if a consortium of banks, upheld to a limited extent by a one-time appropriation from the Government, can permit FINO to roll these POS terminals out quicker, it would permit a decrease in exchanges expenses and better data the board that much sooner, specifically bringing about a decrease in loan fees. The money related expense relies on the wellspring of the assets the loaning organization can procure. The Scheduled Commercial Banks appreciate advantage on Micro Credit Institutions in such manner. Anyway, absence of vicinity to borrower and higher exchange cost wipes off the upside of expense of assets.

### **3. Decontrolling Interest Rates on Agricultural Loaning**

The controlled Interest rates on loaning for farming exercises have brought about dissemination of sponsored money to borrowers regardless of security/record of loan repayment/practicality of action financed. It results in monetary specialist organizations not giving particular loan fees to borrowers with better record as a consumer. The evacuation of topping on financing costs would help banks offer reasonable rates to borrowers with great record of loan repayment and in the meantime keep higher edges for borrowers with no earlier record of loan repayment or for unbound loaning since these could require higher misfortune provisioning. A noteworthy piece of expense of horticultural loaning originates from provisioning for and discounting of the misfortune resources. The working up of the country framework could have useful effect on recuperation and transfer instrument of benefits, which thus could decrease the expense of recuperation and offer impulse to recuperation system. This would prompt decrease in hazard provisioning necessity in present moment.

### **4. Better Market Risk Management**

Market dangers are a result of the two varieties in free market activity for yields that are not exposed to restricting value controls and from the powerlessness of controlled markets to react auspicious and productively to changes in the economic situations. Variety in the market cost gotten by the ranchers is an impression of the market hazard. Market dangers might be because of components influencing convenient conveyance of produce to business sectors or the nature of the produce (for example poor feeder streets and capacity/transport offices in blend with transient, cumbersome produce), just as to changes in the interest or cost (because of components, for example, overabundance in the market at the season of collector absence of interest because of progress in the utilization design). We talk about beneath a couple of methodologies, which as we would see it will help address a portion of the market chance issues.

### **5. Improved Price Discovery through Exchanges and Automated Auction Markets**

One key driver of significant worth for agriculturists when all is said in done yet explicitly to enhance access to back is the improvement of national distribution center receipt/spot showcase for both dry and wet merchandise. A NCDEX type stage for farthest point request coordinating sort exchanges and a SAFAL type stage for Dutch and English Auctions are basic

for these business sectors. The majority of the Mandi's should be electronically connected to these trades and costs made accessible to every one of the agriculturists. Through the entire Village Knowledge Center proposition (and other comparative web based activities) exchanging stages should be stretched out to the most remote corners of the nation. If there should arise an occurrence of SAFAL, since there is requirement for an a lot bigger market-yard framework in different parts of the nation also, there is a need to advance the making of various such markets however all with both physical and web based unloading ability (counting from abroad) so value revelation can occur on a neighborhood just as national and worldwide premise. Banks to be permitted to Trade Agricultural Commodities - Since there is a desire that banks will

- a. give a lot of money against yield hazard and
- b. broaden effort of budgetary administrations profound into rustic India, it is basic that they be allowed to exchange these wares straightforwardly alone monetary record (both locally and cross-fringe) so they can fence out the dangers that they as of now bring about on their asset report, give a bigger extent of current incentive as ware account to the little agriculturist and offer more straightforward money related items, for example, product forward contracts to those ranchers that can't stand to exchange the base part sizes of the national trades.

## **6. Expansion of Cheque Transaction Facilities**

Save Bank of India has recommended presentation of check truncation in clearing house in New Delhi by December 2006. While introduction of checks through picture handling would diminish clearing time and costs radically cutting down expense of individual exchange, the genuine effect of truncation would be felt when outstation check gathering would occur through truncation as it would decrease the ideal opportunity for encashment of instrument from normal 10 days to 1 day and would wipe out the dispatch/postal expense and probabilities of losing of checks.

## **Risk Costs**

The imperative job of the monetary framework, particularly the saving money industry with its delegate work, in current financial matters and their effects on financial development has been affirmed in the past speculations identified with financial matters. Hence, there is a long regular consideration of the examination network on both the hypothetical and observational dimension of banks' productivity which alludes to the capacity of banks to create income from a given number of benefits and make a benefit from a given wellspring of pay. What's more, the adequacy of a managing an account framework is assessed by its capacity not exclusively to give benefits yet in addition to keep up the soundness of the entire framework. Understanding and dealing with the effectiveness of money related intermediation useful for the managing an account industry and financial advancement, just as better benefit for partners, coming up next are the reasons for hazard cost in rustic business banks.

### **1. Moral Hazard**

As in any moneylender borrower relationship, there is a general issue of good risk that is the consequence of explicit individual attributes and choices of every individual borrower. In such manner, country populace doesn't vary from some other borrower aggregate regarding data, impetuses, checking and implementation issues related with the loaning procedure.

## **2. Creation and Yield Risk**

Agrarian yields are commonly questionable, as characteristic dangers, for example, the climate, nuisances and illnesses and other creation disasters sway on homestead yield. Indeed, even slight changes in climate conditions - fewer downpours than expected - can genuinely affect on ranch creation. Vermin and infections may spread rapidly, prompting lost part or the majority of the harvest's produce. The dirt nature of the plots just as their area likewise essentially impact profitability and yield chance and regularity of rural generation gives an extra hazard. For these entire hazard the board systems, the experience of the little agriculturist is the center prerequisite for good outcomes. As needs be, reasonable loaning choices should be founded on an appraisal of the administration limit of the agriculturist.

## **3. Cost and Market Risk**

Value vulnerability because of market vacillations is especially huge where advertise data is missing or inadequate, or where markets are defective – highlights which are common in many creating nations. The moderately extensive stretch of time between planting a yield or beginning domesticated animals exercises and the acknowledgment of ranch yield suggests that advertise costs may change from what has been anticipated. This issue is especially pertinent for longer term rural exercises, for example, perpetual tree crops like apples or citrus culture, as quite a while lie among planting and first gather. Value variances might be especially extreme in fare markets. Over-generation, nonetheless, may likewise impressively impact household advertise costs. In numerous nations, cost vulnerability has expanded with advancement of agrarian advertising. Market hazard likewise incorporates the potential misfortunes engaged with promoting farming items. Transportation, as has been brought up before, is a noteworthy test in numerous rustic territories. Generous misfortunes may likewise happen because of an absence of proper storerooms.

## **4. Absence of Diversification**

Cost and market hazard, as much as creation and yield chance, is higher for agriculturists focusing on a solitary harvest or domesticated animals action. Likewise, numerous agriculturists apply hazard broadening procedures to decrease these dangers. Supplementing market-situated creation with subsistence cultivating is one specific security net game plan, which gives survival measures once yield, generation, cost and market dangers decrease the benefits made. Other than this, many homestead family units fuse in their general enhancement technique additionally non-ranch exercises.

## **5. Absence of Collateral**

Most little ranchers have next to zero resources. Indeed, even less little ranchers have land titles or merchandise which are generally utilized as advance guarantee by banks. The most acknowledged resource for use as advance insurance is land, since it can't be evacuated yet can for the most part be exchanged at a particular market cost. Little agriculturists' property, be that as it may, may likewise have a restricted esteem if there is no land advertises. Land titles may likewise be inaccessible or expensive to acquire. At last, land enlistment is frequently flawed in numerous nations.

## **6. Political Risk**

Political impedance in horticultural markets is a typical element to be found in many creating nations. Value intercession in rural markets, for instance, is well known, as low nourishment costs are in light of a legitimate concern for urban customers. Then again, settled costs for



agrarian produce are additionally an as often as possible utilized political instrument to guarantee a specific dimension of pay for little ranchers. Farming loaning has a longstanding history of political intercession and contortion, which significantly added to the lack of engagement of business banks around here.

**7. The Costs of Rural Lending**

Loaning to little agriculturists can be an exorbitant undertaking. Actually, loaning in rustic zones is commonly more costly than loaning in urban zones. Customers are broadly scattered, and long separations must be gone by advance officers and additionally clients. Loaning in little sums is, when all is said in done, more exorbitant than loaning in greater sums, as the expense of evaluating, observing, and following up on credits does not diminish with the extent of the advance. Or maybe, considerable parts of authoritative loaning costs are of a settled sort. The key cost driver in loaning is the need to get significant data about the potential borrower and to almost certainly complete a nearby checking. Data is crucial in surveying and overseeing hazard.

**8. Dispersed Clients**

Low populace thickness combined with scattered area of rustic customers make the arrangement of formal money related administrations expensive. Both from the bank's and borrower's point of view, the long separations among networks and the lacking rustic transportation offices in many creating nations increment the expenses of advance evaluation, advance observing and authorization of advance reimbursements.

**9. Restricted Existing Information Base on Potential Customers**

There is a general nonappearance of records of loan repayment as couples of monetary establishments offer the likelihood to create a reputation with them. Starting a connection between the rural bank and a customer is especially exorbitant and includes significant "start-up" data costs. The bank must catch key direct data from the borrower, which requires time and experienced staff. In the wake of building up a reputation with the agrarian bank, the data costs decrease.

**10. Restricted Written Documentation to Base Credit Assessment On**

Little agriculturists for the most part demonstrate a low dimension of formal training and are not used to oversee composed reports or keep records. Thusly, the credit examination should frequently be founded on catching direct data by meeting the potential borrower.

**11. Multifaceted Nature of Economic Activities of Rural Households**

This assorted variety in homestead and non-ranch salary creating exercises of country families requires better information of the homestead family budgetary circumstance. This can expand the bank staff time (and costs) required for credit evaluation. It might likewise require the setting of individual advance reimbursement terms. It is probably going to expand the expenses of preparing rural advance officers.

**12. Interest for Variations in Lenders' Institutional Capacity**

As rural creation, the farming loaning business is to a great extent regular. Given the way that occasional rural exercises are very time-delicate, credit evaluations must be completed inside a brief timeframe and convenient advance distributions must be guaranteed. Therefore, the institutional limit of farming banks must change in accordance with these varieties of credit request amid the year. There may be a requirement for extra, impermanent staff in money related foundations amid pinnacle periods while in different months a diminished remaining burden in agrarian loaning must be off-set by other loaning

exercises. Financially savvy making arrangements for sufficient staff and institutional limit (liquidity prerequisites) is accordingly a testing try.

### **13. Hazard and Cost Management in Rural Lending**

Given the unpredictable hazard structures and high managerial costs, effectiveness is fundamental in farming loaning. Hence, actualizing streamlined strategies, methodology and devices is an absolute necessity. Be that as it may, institutionalization in horticultural loaning needs to manage the test of a high level of heterogeneity of the agriculturist customers and the intricacy of monetary exercises inside each ranch family.

#### **Risk Management**

So as to lessen creation, market and value chances, the accompanying measures can be taken

- An appraisal of the particular dangers that are related with various farming generation exercises in various territories is fundamental in deciding the potential hazard presentation of moneylenders.
- Loan examination ought to incorporate an intensive evaluation of the borrower advance reimbursement limit and his reliability; likewise, outside hazard components of ranch generation ought to be considered.
- Individualized credit items and advance reimbursement plans that are set as per the advance reimbursement limit of the borrower decrease the danger of advance default
- Collaboration with associations which realize agriculturists well decreases customer data expenses and dangers of moneylenders.
- Rural loaning should begin underway zones that present low dangers; activities can then step by step be extended to progressively dangerous zones.
- The credit term and reimbursement portions are custom fitted to the assessed net income of the forthcoming borrower. Agriculturists who depend just on ranch generation exercises typically pay back their credits in a single portion in the wake of moving their homestead produce. Others are equipped for reimbursing their advances in intermittent portions. These agriculturists have a progressively expanded salary base with generally stable month to month pay streams from non-ranch exercises and compensations or settlements from other relatives.
- Loan portfolio broadening serves to ensure country moneylenders against covariant dangers. Rustic moneylenders ought to differentiate their advance portfolio by financing a blend of credits with various loaning purposes, advance terms and advance reimbursement plans. In any case, rustic moneylenders need to set roofs on the offer and volume of complete rancher credits by zone.
- Managing of outside dangers through protection (single-hazard crop protection, multi-risk crop protection, crop-income protection, domesticated animals' protection, hardware protection, house protection, medical coverage and so on).
- Staff impetuses frameworks inspire staff and successfully increment their loaning efficiency. The credit portfolio development and advance portfolio quality ought to be a vital reference point in execution-based motivations for advance officers.

#### **In Order to Reduce Moral Hazard Related Risks, The Following Measures Can Be Taken**

- Clear data ought to be given to borrowers on the monetary states of credits and advance reimbursement commitments (financing costs and charges, insurance necessities, advance

reimbursement terms and legally binding advance commitments). The goal of customer instruction is to advance a positive credit culture and to encourage shared appreciation between the bank and the borrower.

- Co-marking of advance contracts and good influence are successful intends to improve great credit discipline. Now and then, both a couple sign the advance contract. This stretches out the loan specialist borrower relationship to the entire family unit and it develops the feeling of commitment by the borrower.
- Close contacts between the moneylender (advance officers) and the borrower are helpful for an air of common trust that enhances credit discipline.
- Partnerships with horticultural items processors in very much coordinated showcasing chains can altogether diminish the dangers (and expenses) of rustic loaning. The mediation can be connected in the determination procedure processors' field specialists know the makers and can make a pre choice dependent on their own insight into the makers' profound quality and capacity; this adds to incredibly lessening the intermediation costs for the bank; so as to guarantee that the pre-choice procedure done by the agro-processors is done genuinely, it is best that they convey a segment of the hazard.

#### **Risks from Changes in Domestic and International Policies Measures**

- Rural loaning foundations ought to be free of political obstruction in their day by day the board.
- Rural loan specialists routinely need to screen strategy and market changes that influence their provincial (particularly horticultural) customers.
- Security substitutes supplant progressively traditional sorts of advance certifications and can give essential credit reimbursement motivating forces. These kinds of guarantee have a more mental than real market esteem. Among the different sorts of guarantee substitutes we can specify
- Group ensures if there should arise an occurrence of gathering loaning. Regardless of whether every single money related exchange are led straightforwardly between the bank and the individual gathering individuals, peer aggregate weight, be that as it may, is actuated when advance reimbursements are expected, as new credits will be possibly given when all individuals from the gathering have completely reimbursed their advances.
- Pledge resources. On account of little credits to low pay borrowers, the benefits included have a constrained market esteem, however they are very esteemed by their proprietors who might experience issues in supplanting them. Ordinarily, these products incorporate family machines and furniture just as homestead gear.
- "Emblematic" types of credit security. These can incorporate the physical ownership of land title archives by the bank over the span of the credit. Promises of future yield harvests and family reserve funds are likewise acknowledged, despite the fact that they are not legitimately enforceable.
- Co-endorsers or underwriters. Two kinds of underwriters can be utilized i) "moral underwriters", who have a cozy association with the borrower family unit, are required for little advances. They are utilized chiefly as counteractive action against good peril. ii) "individual underwriters", then again, are evaluated similarly as the borrower and, on account of credit default, they are mindful to meet all the advance commitments.
- Guarantee finances accessible in various nations.

- Lending hazard protection. Banks can contract worldwide non-installment protection with an insurance agency for all its country advances. The expenses of this protection are worked in the financing cost charged to every individual client; the protection replaces other security prerequisites.
- Partnership plans rural items processors in all around coordinated showcasing chains. The mediation can be connected in the recuperation procedure, by deducting portions specifically from the processors' installments to the makers that would be allotted to the bank; this course of action requires consenting to a three gathering arrangement.
- Partnerships with agrarian gear providers so as to encourage liquidation of guarantee if there should be an occurrence of need.

### **Cost Reduction**

Rustic loaning is an exorbitant business since it serves a scattered provincial customer base. A significant number of the cost decrease techniques, as laid out beneath, include overwhelming introductory overhead expenses. This suggests they don't deliver an arrival in a brief timeframe and an evaluation ought to be made of their long haul cost adequacy. Fundamental methodologies to decrease the monetary exchange costs incorporate the accompanying

- Adopting a bunch approach picking bigger towns with great horticultural potential and with a town headman who is eager to take an interest effectively in loaning exercises, for example, spreading data and arranging gatherings.
- Using creative data and correspondence innovation (different types of branchless keeping money demonstrate)
- Decentralization of loaning choices to branch staff and credit officers.
- Delegation of parts of the examination, dispensing and observing methods to different gatherings that are in close contact with the borrowers, for example local gatherings/affiliations, business advancement focuses and so on.
- Applying suitable course wanting to stay away from over the top voyaging and decreasing transport costs.
- Investing in qualified, very much prepared and profoundly energetic field staff so as to have positively affects the loaning efficiency.
- Using a standard credit examination structure with standard advance appraisal pointers, which are mechanized.
- Using streamlined advance evaluation techniques to diminish the time required for advance handling, advance endorsement and credit payment.
- Defining borrower pre-determination criteria to deal with borrowers with a lacking reimbursement limit or reluctance to reimburse at the most punctual stage conceivable of the advance evaluation.

### **Restricted Existing Data on Potential Customers**

Just as constrained composed documentation can be diminished by the accompanying measures

- Close contacts with nearby associations and systems give applicable customer data.
- Loan officers with rural learning, great relational abilities and all around acclimated with the nearby locale can fundamentally decrease the time and expenses of gathering data and to set up the credit records.
- Effective administration data frameworks give pivotal data (fitting customer data framework

and a far reaching database which tracks client execution and financial action profiles).

Seasonality and complexity of activities in rural households require specific and very much prepared advance officers. The efficiency of provincial (farming) credit officers, interestingly with urban loaning exercises, is liable to regular variances. Broadening of the country advance portfolio as far as area and loaning purposes adjusts the uneven staff outstanding burden because of the regularity in horticultural loaning. In the meantime, the abilities, learning (foundation in agronomy, ranch the executives, and rustic economy) and individual characteristics of the advance officer are essentials for proficient credit evaluation.

### **3.4 Emerging Trends in Rural Banking**

Provincial is separated from the urban as far as its geo-physical area, spatial conveyance of family units on connection family complex lines, affectionate interactional example among people and families, agribusiness based word related structure, casual demographic framework formalized through built up conventions and organizations, attributed control and expert example and a conviction framework dependent on confidence and conviction in religious morals and subjects. The development and improvement of urban territories have all things considered been to the detriment of country zones. With the development of downtown areas, the farmland began getting dismissed. This holds more truth for the country populace in creating nations is concerned. At the point when the umbrella of pilgrim routine was lifted from the Third World countries, a large portion of the organizers and directors of these recently autonomous youthful countries were worried about the advancement of different territories of their country.

#### **Rural innovation**

NABARD job in rustic advancement in India is extraordinary. National Bank For Agriculture and Rural Development (NABARD) is set up as a summit Development Bank by the Government of India with an order for encouraging credit stream for advancement and improvement of farming, house and town enterprises. The credit stream to farming exercises endorsed by NABARD achieved Rs 1,57,480 crore in 2005-2006. The general GDP is assessed to develop at 8.4 percent. The Indian economy in general is balanced for higher development in the coming years. Job of NABARD in general improvement of India by and large and rustic and farming in explicit is very crucial.

#### **Microfinance and NABARD**

For a superior reach of microfinance program a ceaseless check of the status, advance, patterns, subjective and quantitative execution completely is required. In this way the Reserve Bank of INDIA and NABARD has spread out specific rules in 06-07 for the business banks, Territorial Rural Banks and Cooperative Banks to give the information to RBI and NABARD about the advancement of the microfinance program. There are three perspectives on which the information was gathered, reserve funds of self improvement gatherings with banks, credit dispensed by banks to self improvement gatherings default independent from anyone else help gathering's reimbursement of the advances taken from banks. Banks likewise gives information with respect to advances given by banks to the microfinance organizations.

#### **E-banking Defined as Following Measures**

1. Internet Banking (Online Banking)
2. Telephone Banking

3. TV-based Banking
4. Mobile Phone Banking
5. PC Banking (Offline Banking)

**Tele-Saving Money** Tele-keeping money administration is given by telephone. To get to a record it is required to dial a specific phone number and there are a few alternatives of administrations.

**PC-Managing an Account** The term 'PC-Banking' is utilized for keeping money business executed from a client's PC, i.e., clients can utilize their PCs at home or at their office to get to their records for exchanges by buying in to and dialing into the bank's web restrictive programming framework utilized secret key.

**Web Based Managing an Account** Online saving money is the creation exchanges and bills through web. This permits money exchanges and bill repayment with in the time. The key advantage of this installment is the accommodation and the way that the entrance to cash, insofar as there is Internet get to.

**Business Banks** Business banks perform numerous capacities. They fulfill the money related necessities of the segments, for example, agribusiness, industry, exchange, correspondence, so they assume noteworthy job in a procedure of monetary social needs. The capacities performed by banks, since as of late, are getting to be client focused and are enlarging their capacities. By and large, the elements of business banks are partitioned into two classes essential capacities and the optional capacities. The accompanying diagram rearranges the elements of business banks. Business banks perform different essential capacities; some of them are given beneath

- Commercial banks acknowledge different sorts of stores from open particularly from its customers, including sparing record stores, repeating account stores, and settled stores. These stores are payable after a specific timeframe
- Commercial banks give advances and advances of different structures, including an overdraft office, money credit, bill limiting, and so on. They additionally give request and request and term advances to a wide range of customers against legitimate security.
- Credit creation is most noteworthy capacity of business banks. While endorsing a credit to a client, they don't give money to the borrower. Rather, they open a store account from which the borrower can pull back. At the end of the day, while endorsing an advance, they consequently make stores, known as a credit creation from business banks.

Alongside essential capacities, business banks play out a few optional capacities, including numerous organization capacities or general utility capacities. The optional elements of business banks can be partitioned into organization capacities and utility capacities.

### 3.5 Financing Poor

India has a standout amongst the broadest monetary frameworks containing business and agreeable banks, microfinance foundations and self-improvement gatherings. However, most by far of country poor still does not approach formal money related administrations vital for neediness decrease and riches creation. What successful measures are required to make cash work for poor people? Here we attract on distributed research to demonstrate that neither banks nor microfinance foundations have possessed the capacity to supplant moneylenders in India. To be sure, the casual moneylenders have progressively defeated formal budgetary framework in their scope to poor by their versatile

administration abilities and flexible interpersonal organizations. We propose that so as to lessen neediness and drive India towards manageable human prosperity a thorough monetary framework dependent on the bank-moneylender linkages is required. Without a full joining of conventional and contemporary budgetary developments any endeavor to grow the formal money related framework in India is probably going to be of restricted utility to poor people.

India has a standout amongst the broadest budgetary frameworks involving banks, microfinance organizations and self-improvement gatherings. There are in excess of 30,775 rustic parts of business and provincial country banks. Country helpful organizations have a more extensive effort, with 1, 08,779 essential horticultural co-agent social orders (PACS). What's more, 2.24 million self-improvement gatherings (SHGs), with the credit linkages by banks are likewise working in India. Besides, the quantity of Kisan Credit Card (KCCs) holders has expanded to 59.09 million<sup>1</sup>. In fact, India contrasts positively and other creating nations both regarding the geological region secured just as normal populace served per bank office.

While the development and inclusion of formal money related administrations in provincial India may appear to be surprising, most by far of country poor still does not approach formal account. This absence of access to formal credit and reserve funds administrations endangers India's endeavors to both destitution decreases just as riches creation important to drive the country towards environmental, social and monetary prosperity. This is so in light of the fact that the budgetary division in India has neglected to make the board advancements that expand on the quality of the casual cash loaning. No big surprise at that point, almost 45% of the country loaning in India is by moneylenders and the pattern is entirely the ascent.

To be sure, regardless of coordinated endeavors by formal and semi-formal budgetary components, the casual moneylenders have powerfully outmaneuvered them in their compass to poor by their dynamic administration aptitudes and interpersonal organizations. There is an immense writing showing the significance of the moneylenders in rustic economy over the word. While a full audit of writing is past the extent of this paper a portion of the writing is demonstrated. The explanations behind the consistent presence of moneylenders in India must be discovered both in the deficiency of the formal budgetary frameworks just as the effectiveness and developments of the moneylenders themselves. Serving the rustic poor is a high-chance, surprising expense recommendation for banks. Banks have dependably dreaded the vulnerability about the reimbursement limit of poor, whose earnings are liable to various vulnerabilities. Without dependable credit data and exorbitant observing, banks dread a high default hazard. This is frequently exacerbated by the needy individuals' absence of security.

Also, the exchange expenses of country loaning in India are high, basically because of little credit sizes, the high recurrence of exchanges, the substantial land spread, the heterogeneity of borrowers, and lack of education. Provincial poor also discover the banks ugly due to their firmness, high exchange costs and a tedious procedure. For a destitute individual the exchange costs related with various visits to bank, long hold up of time, question resulting from awful involvement, and installment of additional lawful cash for the endorsement of advance all signify costs which are pretty much equivalent to the expenses of getting credit from moneylenders with similar productivity.

Moneylenders are described as being exploitative and corrupt. In any case, less perceived is the way that looked with the challenge from the extending formal budgetary framework moneylenders have adjusted administration advancements so as to stay in business. Thusly, their depiction as being exploitative requirements reexamination and ought to be found in contrast with rates being charged for comfort items by formal budgetary foundations. There are sufficient motivations to set aside the idea that casual moneylenders are in every case terrible and exploitative and the formal budgetary administrations—as work as of now—are in every case great.

Mastercard's in India are a valid example. Charge cards are basically accommodation items and a productive administration industry for banks. In India banks issuing Mastercard's charge at a normal yearly rate of 34% enthusiasm on the extraordinary parity. Along these lines, charge card advance is about 3.2 occasions more costly than a home credit at a normal rate of 10.5%. Regardless of whether we assume the most minimal praise card rate of around 20% in India, it is still double the home credit rate in India. These rates contrast well and the loan costs charged by the moneylenders, yet are not viewed as exploitative by the budgetary framework. Moneylenders acting likewise as specialist co-ops to the avoided section of the general public are in any case considered as exploitative. As noted before, on the off chance that we contrast the charge card financing costs and the home advance rates in India, moneylenders are obviously less exploitative than Mastercard industry.

Correlation of comprehensive expenses of getting SHG credit gives another delineation. To start with, there are various investigations that furnish understanding on the difficulties related with microcredit and self improvement gatherings. Much of the time poor have confronted new and extra issues in zones where microfinance and SHGs has been presented. These issues would require to be set out to tackle the maximum capacity of microfinance for country poor. Furthermore, SHGs have been noted as ease money related instruments for poor people. State-possessed banks have been loaning to SHGs at financing costs going from 9% to 12% every year. Notwithstanding, late investigations show that the full expenses are a lot higher, and could run somewhere in the range of 15% and 28% every year. The circumstance is probably going to remain so in light of the fact that except if banks charge loan fees that empower them to recoup costs, the budgetary feasibility and longer-term supportability of SHGs might be risked.

### **Summary**

The genuine development of Indian economy lies on the liberation of rustic masses from destitution, joblessness and other financial backwardness. Keeping this end in view, Regional Rural Banks were set up by the Government of India to build up the rustic economy. With the section of three decades, the RRBs are presently viewed with trust in restoring the provincial India. In the present examination, the job of RRBs in the country credits structure has been profoundly investigated. The country credit structure comprises of need area and the non-need part. There has been gigantic accomplishment in dispensing advances to both the segments. The need division advances comprised higher in rate all through the examination. RRBs have loaned cash to the horticultural part through the present moment and term-advances for the improvement of the farming divisions in the economy. The distributions of transient credits for yields amid the examination time frame are empowering and it comprised a higher rate than that of term-advances. Likewise the advances given by the RRBs to different gatherings in the need division demonstrates an expanding pattern. The



years 2007-08 and 2008-09 enrolled higher development. At the point when contrasted with the credits to non-horticultural exercises, the most astounding offer is recorded in the agribusiness. Be that as it may, it is the obligation of the banks and the administration to investigate the matter of giving adequate measure of advances to non-need part too. The hole between transient advances for yield and the term-advances for horticultural and united exercises should be limited. The banks need to energize the horticultural area by giving bigger measure of term advances. By and large, non-farming part in a roundabout way helps the country economy from various perspectives. Keeping in view, the RRBs may upgrade the level of advance to this area. This finding might be impressive use to country keeping money foundations and strategy producers in creating and forming the proper acknowledge structure as RRBs are indispensable piece of the rustic credit structure in India.

#### Useful Links

- [www.grameenfoundation.org](http://www.grameenfoundation.org)
- [www.worldbank.org](http://www.worldbank.org)
- [www.uncdf.org](http://www.uncdf.org)

#### Model Questions

1. Explain the Commercial Banking Structure?
2. What are the Principles of Risk Insurance Management?
3. What are Functions of Financial Institutions?
4. Discuss the emerging trends in rural banking.
5. Discuss the problems associated in perspective of cost and risk in the rural banking system.
6. Explain risk management system adopted by rural banks.

#### To Do Activity

- Collect the information of disbursement of loan in the rural branches of commercial banks.
- Collect the information from the Reserve Bank of India ([www.rbi.gov.in](http://www.rbi.gov.in)) website relevant with recent initiatives or policies in connection with rural banks.

# Chapter 4 Micro Finance

## Introduction

Microfinance is a category of financial services targeted at individuals and small businesses that lack access to conventional banking and related services. Microfinance includes microcredit, the provision of small loans to poor clients; savings and checking accounts; micro insurance; and payment systems. Microfinance services are designed to be more affordable to poor and socially marginalized customers and to help them become self-sufficient. Microfinance initially had a limited definition - the provision of microloans to poor entrepreneurs and small businesses lacking access to credit. The two main mechanisms for the delivery of financial services to such clients were (1) relationship-based banking for individual entrepreneurs and small businesses; and (2) group-based models, where several entrepreneurs come together to apply for loans and other services as a group. Over time, microfinance has emerged as a larger movement whose object is "a world in which as everyone, especially the poor and socially marginalized people and households have access to a wide range of affordable, high quality financial products and services, including not just credit but also savings, insurance, payment services, and fund transfers."

Proponents of microfinance often claim that such access will help poor people out of poverty, including participants in the Microcredit Summit Campaign. For many, microfinance is a way to promote economic development, employment and growth through the support of micro-entrepreneurs and small businesses; for others it is a way for poor to manage their finances more effectively and take advantage of economic opportunities while managing the risks. Critics often point to some of the ills of micro-credit that can create indebtedness. Due to diverse contexts in which microfinance operates, and the broad range of microfinance services, it is neither possible nor wise to have a generalized view of impacts microfinance may create. Many studies have tried to assess its impacts.

## Objectives of the Chapter

This chapter will enable you to develop an understanding of the following.

- 4.1 Micro Finance and Poverty
- 4.2 Micro Finance Models
- 4.3 Micro Finance and Social Security
- 4.4 Micro Finance Lending Models
- 4.5 Problems in Micro Finance

### 4.1. Microfinance and Poverty

In developing economies and particularly in rural areas, many activities that would be classified in the developed world as financial are not monetized that is, money is not used to carry them out. This is often the case when people need the services money can provide but do not have

dispensable funds required for those services, forcing them to revert to other means of acquiring them. In their book *The Poor and Their Money*, Stuart Rutherford and Sukhwinder Arora cite several types of needs

- Lifecycle Needs such as weddings, funerals, childbirth, education, home building, widowhood and old age.
- Personal Emergencies such as sickness, injury, unemployment, theft, harassment or death.
- Disasters such as campfires, floods, cyclones and man-made events like war or bulldozing of dwellings.
- Investment Opportunities expanding a business, buying land or equipment, improving housing, securing a job, etc.

People find creative and often collaborative ways to meet these needs, primarily through creating and exchanging different forms of non-cash value. Common substitutes for cash vary from country to country but typically include livestock, grains, jewelry and precious metals. As Marguerite Robinson describes in *The Micro finance Revolution*, the 1980s demonstrated that "micro finance could provide large-scale outreach profitably," and in the 1990s, "micro finance began to develop as an industry". In the 2000s, the micro finance industry's objective is to satisfy the unmet demand on a much larger scale, and to play a role in reducing poverty. While much progress has been made in developing a viable, commercial micro finance sector in the last few decades, several issues remain that need to be addressed before the industry will be able to satisfy massive worldwide demand.

The obstacles or challenges to building a sound commercial micro finance industry include

- Inappropriate donor subsidies
- Poor regulation and supervision of deposit-taking micro finance institutions (MFIs)
- Few MFIs that meet the needs for savings, remittances or insurance
- Limited management capacity in MFIs
- Institutional inefficiencies
- Need for more dissemination and adoption of rural, agricultural micro finance methodologies
- Members lack of collateral to secure a loan

Microfinance is the proper tool to reduce income inequality, allowing citizens from lower socio-economical classes to participate in the economy. Moreover, its involvement has shown to lead to a downward trend in income inequality.

### **Ways in which Poor People Manage their Money**

Rutherford argues that the basic problem that poor people face as money managers is to gather a 'usefully large' amount of money. Building a new home may involve saving and protecting diverse building materials for years until enough are available to proceed with construction. Children's schooling may be funded by buying chickens and raising them for sale as needed for expenses, uniforms, bribes, etc. Because all the value is accumulated before it is needed, this money management strategy is referred to as 'saving up'.

Often, people don't have enough money when they face a need, so they borrow. A poor family might borrow from relatives to buy land, from a moneylender to buy rice, or from a microfinance institution to buy a sewing machine. Since these loans must be repaid by saving after the cost is incurred, Rutherford calls this 'saving down'. Rutherford's point is that microcredit is addressing only

half the problem, and arguably the less important half poor people borrow to help them save and accumulate assets. Microcredit institutions should fund their loans through savings accounts that help poor people manage their myriad risks.

### **Microfinance Debates and Challenges**

There are several key debates at the boundaries of microfinance.

#### **Loan Pricing**

This shop in South Sudan was opened using money borrowed from the Finance Sudan Limited (FSL) Program. This program was established in 2006 as one of the only microfinance lenders in the country. Before determining loan price one should take these two costs; Administrative costs by the bank(MFI) and transaction cost by the client/customer. Customers, on the other hand, may have expenses for travelling to the bank branch, acquiring official documents for the loan application, and loss of time when dealing with the MFI (“opportunity costs”). Hence, from a customer's point of view the cost of a loan is not only the interest and fees she/he has to pay, but also all other transaction costs that she/he has to cover.

One of the principal challenges of microfinance is providing small loans at an affordable cost. The global average interest and fee rate is estimated at 37%, with rates reaching as high as 70% in some markets. The reason for the high interest rates is not primarily cost of capital. Indeed, the local microfinance organizations that receive zero-interest loan capital from the online microlending platform Kiva charge average interest and fee rates of 35.21%. Rather, the main reason for the high cost of microfinance loans is the high transaction cost of traditional microfinance operations relative to loan size.

#### **Enabling Policy Support for Micro Finance**

In India, RBI and NABARD played a key role in creating a conducive policy environment for the development of Microfinance sector. RBI's (1991) first circular sent to all scheduled commercial banks contained the following instructions “NABARD is launching a pilot project for SHG-Bank linkage program to cover 500 self-help groups and it will support the pilot project by way of refinance, provide the technical support and guidance to the agencies participating in the program. As this is a novel concept to be tried in the country on a pilot basis and needs all possible support, it may be necessary to deviate somewhat from the existing norms applicable to lending by commercial banks. The banks are advised to actively participate in the pilot project. Banks may charge the interest on the finance provided to the groups at the rate indicated by NABARD. Further the groups will be free to decide on the interest rate to be charged to its members, provided the rate of interest is not excessive. While the present norms relating to margin, security, as also the scale of finance and unit cost will broadly guide the banks for lending to the SHG, deviations there from can be made by the banks were deemed necessary.”

#### **Growth of Microfinance in India**

Indian Government has considerably enhanced allocation for the provision of education, health, sanitation and other facilities which promote capacity building and wellbeing of the poor. The Indian government puts emphasis on providing financial services to the poor and underprivileged since independence. The commercial banks were nationalized in 1969 and were directed to lend 40% of their loan at concessional rate to priority sector. The priority sector included agriculture and other

rural activities and weaker section of society in general. The aim was to provide resources to help the poor to start their micro enterprise to attain self-sufficiency. The government of India had also launched various poverty alleviation programs like Small Farmers Development Scheme (SFDS) 1974-75, Twenty Point Programme (TPP) 1975, National Rural Development Programme (NRDP) 1980, Integrated Rural Development Programme (IRDP) 1980, Rural Landless Employment Guarantee Programme (RLEGP) 1983, JawharRozgarYojna(JRY) 1989, Swarna Jayanti Gram Swarajgar Yojana (SGSY) 1999 and many other programs. But none of these programs achieved their desired goal due to poor execution and mal -practices on the part of government officials. Public funds meant for poverty alleviation are being misappropriated or diverted through manipulation by the locally powerful or corrupt. To supplement the efforts of microcredit, Government of India had started a very good scheme viz.Integrated Rural Development Programme (IRDP) in 1980. In a period of nearly 20 years the total investment was around Rs. 250 billion to roughly 55 million families. But it was far from realizing its desired goal. The problem with IRDP was that its design incorporated a substantial element of subsidies (25-50% of each family’s project cost) and this resulted in extensive malpractice and mis-utilisation of funds. This situation led bankers to view the IRDP loan as motivated handout and they largely failed to follow up with borrowers.

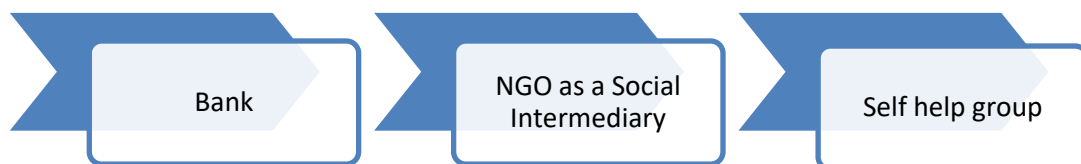
On 1st April 1999,a new programme called Swarnajayanti Gram Swarajgar Yojana (SGSY) was launchedby amalgamating programmes like IRDP (Integrated Rural Development Programme) and a number of allied programmessuch as TRYSEM (Training of Rural Youth for Self-Employment), DWCRA (Development of Women and Children in Rural Areas), SITRA (Supply of Improved Toolkits to Rural Artisans), GKY (Ganga Kalyan Yojana) , and MWS (Million Wells Schemes). This is a holistic programmecovering all aspects of self-employment such as formation of Self Help Groups (SHGs), training, credit, technology, infrastructure and marketing. The programme aims at establishing a large number of microenterprises in rural areas.

#### 4.2 Micro Finance Delivery Models

As Indian rural context is diverse, no one model emerged as fits for all. Various models are in practice as herein below.

a. **NGO as a Social Intermediary**

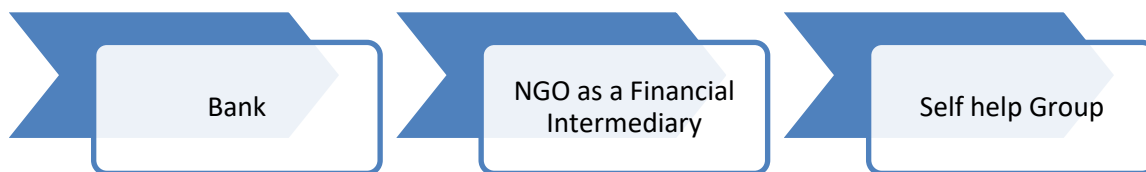
In this model, the NGO has no financial role and only act as a social intermediary. NGO facilitates direct credit linkage of SHGs with banks. The NGOs assist the banks in monitoring the credit linked SHGs.



**Figure 4.1 NGO as a Social Intermediary**

b. **NGO as Financial Intermediary**

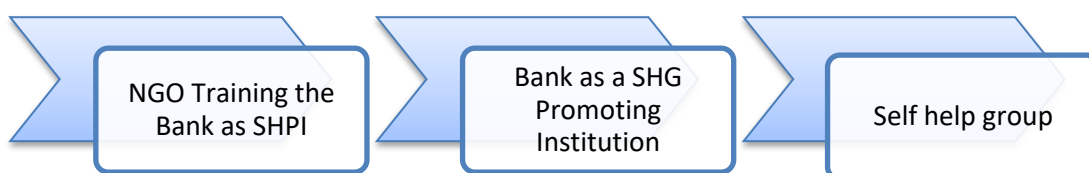
In this model, the NGO has a financial role. i.e. NGO obtains loan from a bank and adds a margin to it and then on-lends to the SHG.



**Figure 4.2 NGO as a Financial Intermediary**

**c. Bank as Self Help Group Promoting Institution**

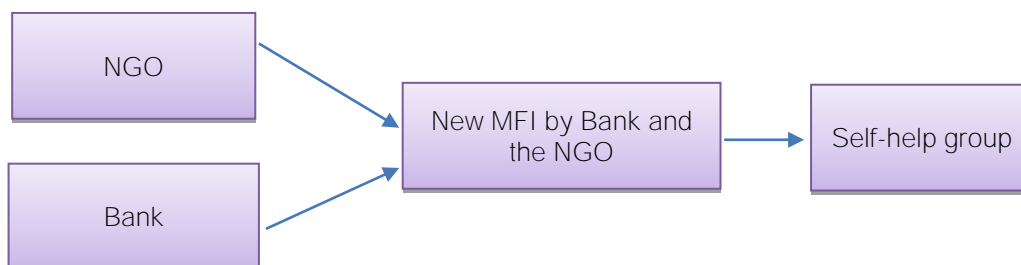
In this model, the promotion of groups is done by Banks themselves. Initially, NGOs train the bankers in social mobilization. Later, the bank acts as a Self Help group Promoting Institution (SHPI) E.g. Cauvery grameen bank, Mysore in Karnataka trained by MYRADA promoted the SHGs and credit linked them.



**Figure 4.3 Bank as SHPI**

**d. Joint venture**

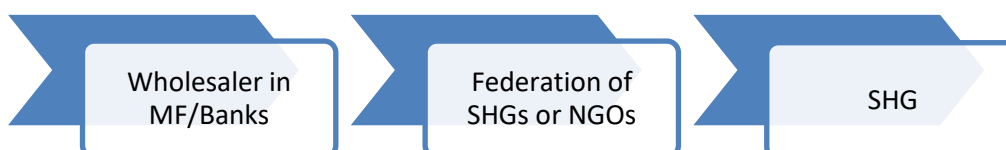
Under this model, Bank and NGO jointly float a new structure as a Micro Finance Institution (MFI) to deliver the microcredit. E.g. HDFC bank and Palmy rah Workers Development society (PWDS), Marthandam have jointly contributed to the equity capital of the new outfit and floated the MFI - Indian Association for Savings and Credit (IASC), Coimbatore.



**Figure 4.4 Joint venture**

**e. Bulk Lending to NGOs and Federations of SHGs**

Under this model, the banks or wholesalers in micro finance like NABARD, SIDBI Foundation for Microcredit (SFMC), Friend's of Women's World Banking (FWWB) and RashtriyaMahilaKosh (RMK) provide loan funds to the NGOs / apex bodies of SHGs like federation of SHGs, which in turn on-lend to SHGs.



**Figure 4.5 Bulk lending to NGOs / Federations**

#### f. NGO-MFIs

Under this model, the NGOs are transforming themselves into Micro Finance Institutions to offer the micro credit and other financial services to the poorest of the poor.

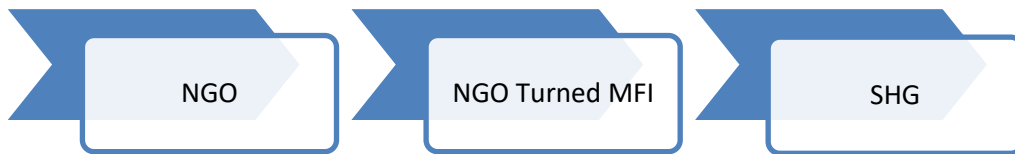


Figure 4.6, NGO – MFIs

Each model has its own advantages and disadvantages. But, most commonly found model is the one in which the NGO acts as a social intermediary.

### 4.3 Micro Finance and Social Security

The success of the MFIs is no longer related only with the financial performance because microfinance was evolved as a tool of social empowerment, financial inclusion and poverty reduction rather than a profit making mechanism. So as a social enterprise, the MFIs are a means to achieving social goals. These include serving poor people, serving people otherwise excluded from formal financial services, providing appropriate financial services, contributing to employment, contributing to positive change for clients and their households, contributing to poverty reduction and being socially responsible. But at the same time the MFIs should operate in such a manner that they can cover their costs and be financially sustainable. Hence, most MFIs strive to meet interrelated financial and social goals, managing a double bottom line where strong financial performance facilitates the fulfillment of a social mission. In microfinance, social and financial performance is linked and mutually reinforcing. MFIs which pay attention to their mission to improve the lives of the poor people are likely to improve their financial bottom line as well

#### Micro Finance and Livelihood Approach

The global poverty crisis and resulting human suffering, environmental degradation, civil unrest and many other societal ills, are hastening the search for saleable anti-poverty approaches. These deplorable conditions are the source of the growing interest in microcredit and, more broadly, microfinance. The term “Microfinance” pertains to the lending of extremely small amount of capital to poor entrepreneurs in order to create a mechanism to alleviate poverty by providing the poor and destitute with resources that are available to the wealthy, albeit at a smaller scale. This particular form of lending has existed in the world for quite some time, though formalized by Mohammed Yunus in Bangladesh during the 1970’s, in his efforts to combat poverty and provide resources to the poor via the Grameen Bank and the microfinance model. The commercialization of microfinance is a means to an end, and that end is the reduction and ultimate lamination of extreme poverty from the face of the earth. Microfinance refers to a variety of financial services that target low-income clients, particularly women. Since the clients of microfinance institutions (MFIs) have lower income and often have limited access to other financial services, microfinance products tend to be for smaller monetary amounts than traditional financial services. These services include loans, savings, insurance, and remittances. Microloans are given for a variety of purposes, frequently for microenterprise development. The diversity of products and services offered by microfinance reflects the fact that the financial needs of individuals, households, and enterprises can change significantly over time, especially for those who live in poverty.

### **Sustainable Rural Livelihood**

There are 1.4 billion people in the world living in extreme poverty and about 70 percent of them live in rural areas. The term “sustainable livelihood” reflects the shift towards a more people-centered approach to development following the 1987 Brundtland Commission Report and the first UNDP Human Development Report in 1990. The concept of sustainable livelihood was developed further by research institutions including the Institute of Development Studies of the University of Sussex and the Overseas Development Institute in the United Kingdom; NGOs such as CARE and Oxfam; and development organizations including DFID and UNDP. A livelihood approach is a way of thinking about the objectives, scope and priorities for development. It focuses on the multiple resources, skills and activities that people draw upon to sustain their physical, economic, spiritual and social needs. Ultimately, it is an attempt to redefine development in terms of what human beings need and in terms of what they can contribute to one another’s well-being.

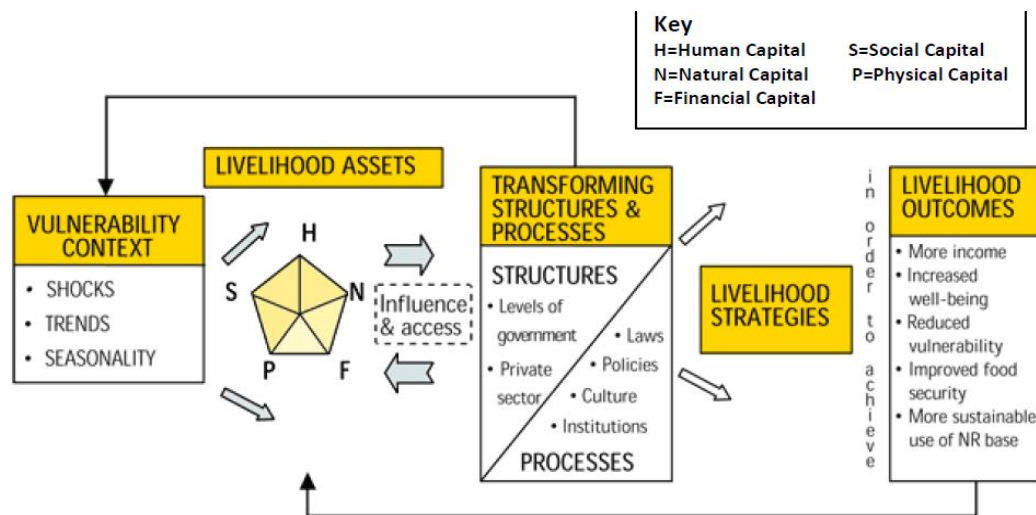
The concept of Sustainable Livelihood (SL) is an attempt to go beyond the conventional definitions and approaches to poverty eradication. These had been found to be too narrow because they focused only on certain aspects or manifestations of poverty, such as low income, or did not consider other vital aspects of poverty such as vulnerability and social exclusion. It is now recognized that more attention must be paid to the various factors and processes which either constrain or enhance poor people’s ability to make a living in an economically, ecologically, and socially sustainable manner. In 1992, Robert Chambers and Gordon Conway proposed the following composite definition of a sustainable rural livelihood, which is applied most commonly at the household level, as "A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term."

The Sustainable rural livelihood framework views livelihood as system and provides a way to understand

- The assets people draw upon.
- The strategies they develop to make a living.
- The context within which a livelihood is developed.
- And those factors that make a livelihood more or less vulnerable to shocks and stresses.

‘The SL approach is one way in which developmental activities could be thought of, the eventual goal being to reduce or eradicate poverty (Ashley & Carney 1999; DFID 1999; Koziell 2001). The developmental activities are deliberately focused on the people and how they lead their lives (DFID 1999). The SL approach is mindful of diversity of livelihoods; and perspectives and causes of poverty (Koziell 2001). The following figure presents the sustainable livelihood frame work (Figure 4.7).





**Figure 4.7 Sustainable Livelihood Frame Work**

**The Sustainable Livelihood approach involves**

**Vulnerability Context** The poor people are generally living in the vulnerable situations within the turnover of trade and global trend, shock from the social and cultural network as well as unstable market prices and finally depleting from the natural resources. The representation of the vulnerability context as “all-embracing” for the poor, but mediated by the interplay of the other elements in their livelihoods, emphasizes the responsibility of development interventions to help the poor to cope with vulnerability factors.

**Livelihood Assets** The poorest households combine a variety of resources to which they have access in different ways to continue their livelihoods and these resources are called livelihood assets (Hossain *et al.*, 2010). There are five livelihood assets, as identified by DFID (2001), belongs to smooth sustainable life; such as (i) Human capital (ii) Physical capital (iii) Financial capital (iv) Social capital (v) Natural capital.

Human Capital	Skills, knowledge, health and ability to work
Social Capital	Social resources; including informal networks, membership of formalized groups and relationships of trust that facilitate co-operation and economic opportunities.
Natural Capital	Natural resources such as land, soil, water, forests and fisheries
Physical Capital	Basic infrastructure; such as roads, water & sanitation, schools, ICT and producer goods; including tools, livestock and equipment
Financial Capital	Financial resources including savings, credit and income from employment, trade and remittances

**Transforming Structure and Processes** The framework are on the various external factors that affect on the poor access of the different forms of assets as well as get feedback with the exchange of these assets . The existing structure and running process are directly enabling them to access, of both, assets and activities they need. The institutions that operate within a given context will be critical to sustainable livelihood outcomes. Livelihoods are formed within social, economic and political contexts.

**Livelihood Strategies** the livelihood strategies is whatever the poor people are doing for surviving in the situations of shock from the social and cultural network as well as unstable market prices and finally depleting from the natural resources. On the other hand, the livelihood strategies are the way of poor efforts to move out themselves from the vulnerable context through existing structures and running process by use of their existing assets and financial access in the income generating activities.

**Livelihood Outcomes** The livelihood outcomes are what poor households actually achieved by applying their livelihood strategies. The outcomes of livelihood would be sustainable if the people able to ensure secure recovery from external stress and shocks and maintain or enhance its capabilities and assets.

**Livelihood Interdependence** A given livelihood may rely on other livelihoods to access and exchange assets. Traders rely on farmers to produce goods, processors to prepare them, and consumers to buy them. Livelihoods also compete with each other for access to assets and markets.

#### **4.4 Micro Finance and Credit Lending Models**

Microfinance institutions are the oldest financial institutions in the world, but with time they have adapted to the changes, and have started using various credit lending models. Microfinance services are provided with different methods in India. A total of 14 models are existing in India. They include associations, bank guarantees, community banking, cooperatives, credit unions, Grameen, group, individual, intermediaries, NGOs, peer pressure, ROSCAs, small business, and village banking models. In reality, the models are loosely related with each other, and most good and sustainable microfinance institutions have features of two or more models in their activities. The Microfinance lending models vary in their legal forms, in the channels and methods of delivery, in their governance structure, in their approach to sustainability and also in their approach to microfinance where their funds are sourced from, and how the money is governed.

The basic methodology being used in commercial microfinance in India was innovated by Grameen Bank and later improvised by several players. This methodology involved the following elements

1. Identify the potential customer.
2. Organize the potential customers into groups, so that they could address the issue of information asymmetry and lack of collaterals by transferring what could be an individual liability into a group liability and hold the group morally responsible for repayment – through a process of public oath.
3. Have standardized products, standardized operating systems and enforce discipline; ensure that the exceptions were dealt with severely. Different institutions in formal and informal sector have successfully tried out these models. Though these models have their own model specific strengths and weaknesses, they have demonstrated to provide financial services to the unorganized sector with effective outreach. Majority of the microfinance institutions offer and provide credit on a solidarity-group lending basis without collateral. There is also a range of other methodologies that MFIs follow. Some MFIs start with one methodology and later on move or diversify to another methodology so that they do not exclude certain socio-economic categories of clients. So it becomes important to have a basic understanding of methodologies and activity of Credit Lending Models.

## 1. Association or Group Model

An association is formed by the poor in the target community to offer microfinance services (micro savings, microcredit, micro-insurance, etc.) to themselves. Associations or groups can be composed of youth, or women; they can form around political/religious/cultural issues; can create support structures for microenterprises and other work-based issues. It gathers capital and intermediates between banks, MFIs and its members. Example Self Help Groups. In some countries, an 'association' can be a legal body that has certain advantages such as collection of fees, insurance, tax breaks and other protective measures. Group method primarily involves a group of individuals, which becomes the basic unit of operation for the MFIs. As MFIs have to provide collateral free loans, group methodologies help in creating social collateral (peer pressure) that can effectively substitute physical collateral. Group becomes a basic unit with which MFIs deal. The group approach delegates the entire financial process to the group rather than to the financial institutions. All financial activities like savings, getting loans, repayment of loans and record keeping are managed at the group level.

In this method, 10-20 members are organized to form a group. These group members make regular savings of fixed amount in a common fund. The amount and frequency of savings is mutually decided by the group members. After the successful working of such a group for some months the group is linked to a financial institution for getting credit. The financial institutions issue loan in the name of group and whole group is considered responsible for repayment. The amount of loan depends upon the total accumulated amount of saving of the group. The group itself selects its members before acquiring a loan. Loans are granted to selected member(s) of the group first and then to the rest of the members. Most MFIs require a percentage of the loan that is supposed to be saved in advance, which points out the ability to make regular payments and serve as collateral. Group members themselves decide about the criteria of dividing the loan among the group members. With this loan the whole group may jointly start a micro-enterprise or the members may start their individual businesses. An individual may also use his loan for consumptive purpose or meeting other priority needs.

Group members are jointly accountable for the repayment of each other's loans and usually meet weekly to collect repayments. To ensure repayment, peer pressure and joint liability works very well. The entire group will be disqualified and will not be eligible for further loans, even if one member of the group becomes a defaulter. The creditworthiness of the borrower is therefore determined by the members rather than by the MFI. These type of group based credit delivery methods help to empower the group members because they remain involved in various group activities. They visit the bank, market and hold group meetings which help them to increase self-confidence.

In India, the group based credit delivery method known as SHG-BLP is a predominant method of providing microfinance. ProgrammeHubungan Bank Danks (PHBK) project in Indonesia and the Chikola groups of K-REP in Kenya are also using such group based credit delivery models. The Group Model's basic philosophy lies in the fact that shortcomings and weaknesses at the individual level are overcome by the collective responsibility and security afforded by the formation of a group of such individuals. The collective coming together of individual members is used for a number of purposes educating and awareness building, collective bargaining power, peer pressure etc.

## 2. Community Banking Model

Community banking model essentially treats the whole community as one unit, and establishes semi-formal or formal institutions through which microfinance is dispensed. Such institutions are usually formed by extensive help from NGOs and other organizations, who also train the community members in various financial activities of the community bank, closely related to the village banking model. These institutions may have savings components and other income-generating projects included in their structure. In many cases, community banks are also part of larger community development programmes which use finance as an inducement for action. Village banks are community-based credit and savings associations. They typically consist of 25 to 50 low-income individuals who are seeking to improve their lives through self-employment activities.

Community-based organizations (CBO) differ from solidarity group in that they assume eventual graduation of their borrowers from the lending institutions. Therefore, the primary function of CBOs is to develop internal financial management capacity of the group in order to create a mini-bank, independent of the lending institution, owned and managed entirely by the poor. The subcategories of the CBOs are community managed loan funds (CMLF) and village savings and loan associations (VSLA). The former is more widely known as a village banking model and it was developed by John Hatch of FINCA. The main distinctions between CMFLs and VSLAs are the following

1. CMLFs receive initial external funding (in the form of a loan or grant). There are two main approaches to community-managed loan funds-Village Banking and Revolving Loan Funds. In addition to the external funding, CMLFs have internal fund (money invested by the members of the fund).
2. VSLAs generate all funds internally (through member savings or retained interest) and receive no external funding. VSLAs can receive technical assistance from NGOs and some equity funding only.

## 3. Cooperative Model

Cooperatives are very much like 'associations and Community Banks' except that their ownership structure does not include the poor. A co-operative is an autonomous association of persons belonging to the same local or professional community united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise. Some cooperatives include member-financing and savings activities in their mandate. Members participate in all the major decisions and democratically elect officers from among themselves to monitor the administration of the co-operative. Creditworthiness and loan security are a function of cooperative membership within which member savings and peer pressure are assumed to be a key factor. Though the magnitude and timing of savings and loans are largely unrelated, a special effort is made to mobilize savings from members.

The leading organization that has been successful in using the cooperative form in rural micro finance in India has been the Cooperative Development Forum (CDF), Hyderabad, which has relied upon a 'credit union' involving the saving first strategy. It has built up a network of Women Thrift Groups (WTGs) and Men Thrift Groups (MTGs). They are registered under Mutually Aided Cooperated Society Act (MACs) and mobilize savings resources from the members and access outside/supplementary resources from the individual system. The WTG or

MTG are divided into small groups (10 to 15 members) to facilitate better monitoring of thrift and repayment of loans. CDF encouraged members to identify more strongly with their WTG/MTG rather than with the groups, as WTG/MTG are the primary legal entities and viable units of operation.

#### **4. The Grameen Model**

Grameen model is based on the concept of joint liability. It is the brainchild of Prof Muhammad Yunus, founder of Grameen Bank in Bangladesh. Grameen model is the most accepted and prevalent micro-finance delivery model in the world today. Many MFIs have accepted the model as it has high focus on standardization and discipline. It has been highly successful in its banking service to the poor as well as in its poverty alleviation programmes.

##### **The Objectives of the Grameen Bank Model**

(i) To extend banking facilities to poor men and women (ii) Eliminate the exploitation of the poor by moneylenders (iii) Create opportunities for self-employment for the vast multitude of unemployed in rural area (iv) Bring the disadvantaged, mostly women from the poorest households, within the fold of an organizational format which they could understand and manage by themselves (v) Reverse the age-old vicious circle of 'low income, low saving and low investment' into a virtuous circle of 'low income, injection of credit, investment, more income, more savings, more investment, more income'.

##### **Features**

'Grameen credit' according to Muhammad Yunus, is based on the premise that the poor have skills which remain unutilised or under-utilised. 'Grameen credit' promotes credit as a human right and is targeted at the poor, particularly poor women. The most distinctive feature is that it is not based on any collateral, or legally enforceable contracts, but on trust. It provides service at the doorstep of the poor based on the principle that the bank should go to the people. Another unique feature of 'Gramee credit' is that it gives high priority to building social capital through the formation of groups and centers, develops leadership qualities and undertakes a process of discussion among borrowers. It lays special emphasis on protection of the environment and children's education, and provides scholarships and student loans for higher education. For the formation of human capital it attempts to increase people's access to technology, like mobile phones and solar power.

#### **5. Intermediary Model**

Access to microfinance has improved lives up to some extent, the estimated impact appear to be quite small and heterogeneous. This is because of the restrictions mandated by microfinance institutions. A better model of microfinance should be designed that will be more flexible system of microfinance that targets smallholder agriculture, without requiring collateral and without endangering financial sustainability. Ideally it should allow individual liability loans, drop savings requirements, have less rigid repayment schedules (so that recipients can invest in high return projects with longer gestation period like agriculture) and reduce/eliminate costly meetings with MFI officials. Is it possible to do all of these and still ensure high repayment rates? Designing such a model that functions is not easy because crucial issues like borrower selection and repayment incentives have to be addressed.

One possible solution is to draw upon one of the key premises of microfinance harness of local information and social capital. If there are third parties within the local community with information concerning creditworthiness of borrowers and with some ability to impose sanctions on non-

performers. These third parties could be appointed as loan intermediaries. On this basis we can say that Intermediary model of credit lending position is a 'go-between' organization between the lenders and borrowers. The intermediary plays a critical role of generating credit awareness and education among the borrowers (including, in some cases, starting savings programmes. These activities are geared towards raising the 'credit worthiness' of the borrowers to a level sufficient enough to make them attractive to the lenders. The links developed by the intermediaries could cover funding, programme links, training and education, and research. Such activities can take place at various levels from international and national to regional, local and individual level. Intermediaries could be individual lenders, NGOs, microenterprise/ microcredit programmes, and commercial banks (for government financed programmes). Lenders could be government agencies, commercial banks, international donors, etc. Most models mentioned here invariably have some form of organizational or operational intermediary - dealing directly with microcredit, or nonfinancial services.

For recommendations, agents receive incentives in monetary as well as nonmonetary basis. The agents receive commissions based on loan repayments. Second, there is a system of deposits and bonuses aimed at ensuring that the agent recommends good borrowers. Finally agents (in conversations during field visits) noted that they expected to increase their visibility within the village community and hence experience an increase in their long term reputation within the community and a boost to their ego.

From a policy perspective this approach resembles the recent policy recommendation by the Reserve Bank of India to set up a network of banking correspondents (BCs) and banking facilitators (BFs) in order to expand financial services to rural areas, remote locations and uncovered households. The agents in our framework could be viewed as BFs.

## **6. Individual Banking Model**

In the past decade, many MFIs have begun to recognize that the traditional group based lending (GBL) model is too restrictive and not universally applicable. As a result, many institutions have started to shift towards various alternative models including group based loans with individual liabilities where repayment is still weekly during a group meeting, or by simply shifting to a model that extends an individual liability loan. The shift towards individual loans has been remarkable over the past few years. As Dean Karlan and Jonathan Zinman said “recent estimates suggest that about one-half of microfinance institutions are individual liability lenders.” Therefore, it is not accurate to denote that microfinance is solely based on a group lending methodology. The individual model is, in many cases, a part of a larger ‘credit plus’ programme, where other socio-economic services such as skill development, education, and other outreach services are provided. This is a straight forward credit lending model where micro loans are given directly to the borrower. It does not include the formation of groups, or generating peer pressures to ensure repayment.

## **7. Other Models**

### **(i) Mixed Multiple Models**

Some MFIs started with the Grameen model but converted to the SHG model at a later stage. However they did not completely do away with Grameen type lending and smaller groups. They are a mix of SHG and Grameen model. Many MFIs have adopted multiple models for the provision of micro finance. It was seen that NGObased MFIs are using mostly the SHG model and the NBFi-based MFIs are mostly using the JLG model for the disbursement of micro finance. But in the recent past, it was noticed that certain MFIs are using multiple models like SHG, JLG, Mutual Aided Cooperatives

etc. even in the same operational area and same category of product. ADHIKAR Micro Fin, a Orissa-based NGO-MFI, provided microfinance products and services through various models like JLG Model, Cooperative Model, Remittance Model and Banking Correspondence Model. The main difference between these programs is rather marginal. The SHGs model is widely used in India. According to the SHGs and Grameen models offer economies of transaction cost to MFIs, but at the cost of members time because the unit of dealing is “group” rather than individual. In contrast, MFIs offering individual loans incur higher transaction costs for serving their borrowers.

#### **(ii) Business Facilitator / Business Correspondent Model**

In 2006, RBI permitted banks to appoint business facilitators and business correspondents (BC). While the former can merely promote the business of the bank; the latter can take on a larger scope of activities, such as disbursement of small value credits, collection of small value deposits, sale of micro insurance, pension and other third party products as well as receipt and delivery of small value remittances and other payment instruments.

#### **Successful Micro Finance Stories in India**

In rural India, a loan of \$50 can spell the difference between poverty and economic self-sufficiency for an entire family. Such is the power of microlending, a form of finance that is helping to eradicate poverty in countries all over the world. Vinod Khosla, founding CEO of Sun Microsystems and a partner at the venture capital firm Kleiner Perkins, calls it “one of the most important Kudumbashree Jointly launched by the Government of Kerala and NABARD in 1998 to eliminate poverty through concerted community action under the leadership of Local Self Governments (LSGs), Kudumbashree (“prosperity of the family”) is the largest multi-faceted women development agency in South Asia, facilitating the organization of the poor for combining self-help with demand-led convergence of available services and resources to tackle the multiple dimensions and manifestations of poverty, holistically. The program has 37 lakh members and covers more than 50% of the households in Kerala.

The three flowers of Kudumbashree’s logo (above) represent its three key organizational pillars, namely economic empowerment, social empowerment, and women empowerment. The violet color represents female emancipation, while the green color represents prosperity. Kudumbashree is implemented by Community-Based Organizations (CBOs) of poor women, structured into NHGs, ADS, and CDS. The grassroots of Kudumbashree are Neighbourhood Groups (NHG in short) that send representatives to the ward level Area Development Societies (ADS). The ADS sends its representatives to the Community Development Society (CDS), which completes the unique three tier structure of Kudumbashree. Today, there are 1.94 lakhs NHGs, over 17,000 ADSs and 1061 CDSs in Kudumbashree.

#### **4.5 Problems and Prospects of Micro Financing in Rural India**

Micro finance is the provision of thrift, credit and other financial services and products of very small amounts to the poor for enabling them to raise their income levels and improve their living standards. It has been recognised that micro finance helps the poor people meet their needs for small credit and other financial services. The informal and flexible services offered to low-income borrowers for meeting their modest consumption and livelihood needs have not only made micro finance movement grow at a rapid pace across the world, but in turn has also impacted the lives of

millions of poor positively. In the case of India, the banking sector witnessed large scale branch expansion after the nationalisation of banks in 1969, which facilitated a shift in focus of banking from class banking to mass banking. It was, however, realised that, notwithstanding the wide spread of formal financial institutions, these institutions were not able to cater completely to the small and frequent credit needs of most of the poor. This led to a search for alternative policies and reforms for reaching out to the poor to satisfy their credit needs.

Whether everyone in need of microfinance intervention had been reached by any of the agencies? Even if everyone had been reached, did they get the required quantum of assistance to have sustainability? These questions are still very inconvenient to be answered because there are certain problems associated with this programme. Some of the main problems have been discussed in the following paragraphs.

### **1. Deserving Poor are Still Not Reached**

The microfinance delivery models are not exclusively focused on those who are below the poverty line or very poor. Though the programme is spreading rapidly but with a slow progress in targeting the bottom poor households. About 50 per cent of SHG members and only 30 per cent of MFI members are estimated to be below the poverty line. According to Ghate (2008), approximately 75 million households in India are poor and about 22 per cent of these poor households (i.e. 16.5 million) are currently receiving microfinance services. The present study also shows that just 19 per cent of the programme participants were BPL at the time of joining microfinance programme. Therefore, it can be said that substantial groups of poor population have been excluded from availing the benefits of the programme. It may be due to a variety of reasons on both the sides, i.e. institutional and borrower. The SHG-BLP has no explicit social or economic benchmarks for inclusion of members in the groups to be credit linked. Lack of specific benchmarks for group membership lead to inadequate poverty targeting. It is also found that the microfinance promoting institutions are also biased while selecting the programme members. In order to run the groups successively and to achieve higher repayment rates, they generally select the non-poor people as programme beneficiaries.

### **2. Regional Disparity**

It has been observed that the microfinance programme is mainly run by formal financial institutions with the help of SHGs. As a result, microfinance programme is progressing in those areas of the country where there is tremendous growth of formal financial institutions. Microfinance institutions were expected to reach those areas where the formal banking system failed to reach and the poor people have to depend on the money-lenders in order to meet their financial requirements. But actually, many big MFIs are activate in those states where the banking network is very strong. In the southern states, such as Andhra Pradesh, Tamil Nadu, Karnataka and Kerala, the spread of SHG bank linkage programme as well as the MFI programme is very large. But the north and north-eastern region is almost neglected. The southern India the spread of commercial bank branch network is the highest (27.94 per cent) and these states cover 48.15 per cent of the country's total SHG members and 54.77 per cent of the MFI members. So, approximately 50 per cent of the total microfinance programme beneficiaries belong to these four south Indian states. In contrast to this, in the north-eastern region of India, bank branch network is very limited and the coverage of microfinance programme is just 2.93 per cent. The table also shows the region-wise branch network and the



microfinance members covered under SHG-Bank Linkage and MFI model in these different regions. The table reveals that the microfinance activity had expanded in those regions where the banking network is strong.

### **3. Limited Spread in Poorer States**

The coverage of microfinance programme is comparatively low in the states which have a larger share of the poor. Unfortunately, these seven states, i.e. Orissa, Bihar, Chhattisgarh, Jharkhand, Uttaranchal, Madhya Pradesh (MP) and Uttar Pradesh (UP) are lagging behind in microfinance programme. These states hold approximately 54.5 per cent of the total poor in India and have only 24.42 per cent of the total SHGs of India. The SHGs of these seven states have received Rs. 31,938 million bank loans which is only 14.37 per cent of the total loans disbursed to the SHGs in India up to 2008. If the number of MFI members are also included along with the SHG members, then the share of these seven states further reduces to just 23.60 per cent of total microfinance outreach in India the number of poor people in three southern states, i.e. Andhra Pradesh (AP), Tamil Nadu (TN) and Karnataka is only 13.61 per cent of the total poor of the country. But 43.86 per cent of the total credit linked SHGs in the country are concentrated in these three states. They have more than 66 per cent of the total bank loans disbursed to SHGs in India. If the number of MFI members is also included along with the SHG members then these three states have 45.78 per cent share of total microfinance outreach in India the reasons for this skewed distribution of microfinance programme may be the intense support extended by the state governments, local culture and practice, and concentration of MFIs.

### **4. High Interest Rates**

Affordability of loan is equally important to the access of financial services to the poor. Economic fundamentals exhort that every borrower is interest sensitive and the capacity of borrowing decreases with increase in interest rates. High interest rates may prove to be counterproductive, and weaken the social and economic condition of poor clients. The high interest rate charged by the MFIs from their poor clients is perceived as exploitative. The interest rates are not well regulated for private MFIs as well as for formal banking sector. However, there are certain self-regulated interest rates fixed by intermediate and apex institutions. MFIs adopt different approaches for fixing the interest rates or service charges on loans to members. A complete picture of the MFI sector regarding the terms and conditions of providing loans and financial services to their clients are not available. Although the interest rates of some MFIs are regulated but they impose some charges like transaction costs, the cost of documents and some other charges. This increases the cost of borrowing, and thus making it less attractive. Normally, banking sector is charging 9 to 10 per cent interest rate per annum from the SHG members, while MFIs charge comparatively higher interest rate which is generally 11 to 24 per cent per annum. But this interest rate varies significantly according to the lending conditions and policy of the MFI.

### **5. Low Depth of Outreach**

Another problem faced by the microfinance programme is the depth of services provided. Though the outreach of the programme is expanding, large numbers of people are provided with microfinance services but the amount of loans is very small. The average loans per member in both MFIs and SHGs are between Rs. 3,500 and 5,000 (Srinivasan, 2009). The amount is not sufficient to fulfil the financial needs of the poor people. The duration of the loans is also short. The small loan size and short duration do not enable most borrowers to

invest it for productive purposes. They, generally, utilise these small loans to ease their liquidity problems.

#### **6. Lack of Insurance Services**

Poor people are vulnerable to financial shocks. A small change in their earning patterns due to natural calamities, health problems, death of earning member etc. can push them to destitute. So, a provision of insurance under the microfinance programme is very essential to help the poor to cross the poverty line. But, in reality, the current microfinance programme in India is just focused on regular saving and micro-credit. SHG-BLP developed by NABARD is also providing saving and credit services mainly and the provision of insurance is very less. However, some of the MFIs have started providing insurance services but the efforts are still at an experimental stage.

A research report by Invest India Market Solutions Pvt. Ltd. (IIMS, 2007) indicates that the penetration of life insurance is only 12 per cent among the rural poor and 19 per cent among the urban low-income population. The penetration ratio for insurance in India was estimated at 4.80 in 2006, whereas for Asia it was 6.60 and for Europe at 8.30 (Srinivasan, 2009). So, in India the provision of insurance services is at the initial stage and this integral part of the microfinance programme is still neglected.

#### **7. Binding of Saving, Meetings and Regular Payments**

The uniqueness of the SHG-BLP is the fundamental requirements of the programme, such as compulsory savings, group meetings, regular repayments etc. But these requirements also lead to the exclusion of the core poor from joining the microfinance programme. Poor people who generally do not have a regular source of income are required to save before getting a loan. These loans are to be repaid regularly in fixed installments. But due to their irregular and seasonal nature of jobs, poor people face difficulties while repaying the loans. It is also found that the initial group loans are utilized for essential non-productive purposes rather than for generating incomes which leads to repayment difficulties. Weekly or fortnightly group meetings are made mandatory, so, the rural poor people who generally earn their livelihood through domestic labour and daily wage earning find it difficult to attend group meetings regularly.

#### **8. Legal Structure and Regulation**

Although the SHG-Bank linkage model is well managed in India by NABARD, currently there is no proper regulatory body for the supervision of MFIs. The presence of institutions with a variety of legal forms makes it difficult for the regulation of all such institutions by a single regulatory body in the current Indian legal structure. Though NBFCs, which cover the major part of the outstanding loan portfolio by the microfinance channel, are regulated by Reserve Bank of India, other MFIs like societies, trusts, Section-25 companies and cooperative societies fall outside the purview of RBI's regulation.

The acceptance of the Malegam committee recommendations by the RBI is a big step forward in addressing the above concern but again it will cover only a section of the MFIs i.e. NBFCs. The microfinance bill which was introduced in the year 2007 is still pending. The most recent and the strongest step taken by the government, The Micro Finance Institutions (Development and regulation) Bill, 2011 is a major step in the microfinance sector. The proposed bill clarifies all doubts pertaining to regulation of the MFIs by appointing RBI as the sole regulator for all MFIs.

#### **9. Financial Illiteracy**

One of the major hindrances in the growth of the microfinance sector is the financial illiteracy of the people. This makes it difficult in creating awareness of microfinance and even more

difficult to serve them as microfinance clients. Though most of the microfinance institutions claim to have educational trainings and programmes for the benefit of the people, according to some of the experts the first thing these SHG and JLG members are taught is to do their own signature. The worst part is that many MFIs think that this is what financial literacy means. We all know how dangerous it can be when one doesn't know how to read but he/she knows how to accept or approve it (by signing it).

#### **10. Inability to Generate Sufficient Funds**

Inability of MFIs to raise sufficient fund remains one of the important concern in the microfinance sector. Though NBFCs are able to raise funds through private equity investments because of the for-profit motive, such MFIs are restricted from taking public deposits. Not-for-profit companies which constitute a major chunk of the MFI sector have to primarily rely on donations and grants from Government and apex institutions like NABARD and SIDBI. In absence of adequate funding from the equity market, the major source of funds for MFIs are the bank loans, which is the reason for high Debt to Equity ratio of most MFIs.

MFIs receive debt from banks against their equity and in order to increase their portfolio size they need to increase their debts for which they further need to increase their equity. After the Andhra crisis, it is reported that banks have stopped issuing fresh loans and even though currently few banks have resumed, they want MFIs to increase their equity to get fresh loans. So the only mode for the MFIs to increase their portfolio size is to increase their equity. The problem of inadequate funds is even bigger for small and nascent MFIs as they find it very difficult to get bank loans because of their small portfolio size and so they have to look for other costlier sources of fund.

#### **11. Dropouts and Migration of Group Members**

Majority of the microfinance loans are disbursed on group lending concept and a past record of the group plays an important role in getting new loans either through SHG-Bank linkage or through MFIs. The two major problems with the group concept are dropouts (when one or more members leave the group) and migration (when one or more members move to another group). Most MFIs lend on the basis of the past record of the group i.e. SHG or JLG and also on the individuals repayment performance. In absence of a decent past record, members are deprived of getting bigger loan amounts and additional services.

#### **12. Transparent Pricing**

Though the concern about the transparent pricing in the microfinance sector has been an older one, it is gaining significance with the growing size and the increasing competition in the sector. Non-transparent pricing by MFIs confines the bargaining power of the borrowers and their ability to compare different loan products, because they don't know the actual price. In absence of the proper understanding of the pricing, clients end up borrowing more than their ability to payback which results in over-indebtedness of the borrower.

MFIs, in order to make their products look less expensive and more attractive, are disguising their actual/effective interest rates (better known as the Annualized Percentage Rates – APR) by including other charges like service charge, processing fee etc. Some MFIs even take interest free deposits for lending microloans. There have been cases where the interest rates are linked with the loan amount, which means a higher interest rate for smaller loans (because of higher transaction cost). This is resulting in highest interest rate being charged to the poorest clients, which contradicts with the social aspect of microfinance.

Ambiguity in the pricing by MFIs is inviting regulatory bodies to implement strict measures like interest rate caps. But simply putting an interest rate cap may encourage MFIs to look for clients with larger loan requirements. This may deprive the clients with smaller loan requirements who are supposed to be the actual beneficiary of microfinance.

### **13. Cluster Formation – Fight to Grab Established Market**

MFIs' drive to grab an established market and reduce their costs is resulting in formation of clusters in some areas leaving the others out of the microfinance outreach. By getting an established microfinance market, MFIs reduce their initial cost in group formation of clients, educating them and creating awareness about microfinance. This is one of the reasons for the dominance of the microfinance sector in the southern states. Now the problem is that a similar trend is being followed in the northern states as well. We have already seen what happened in A.P and it seems that most of the MFIs have not taken a lesson from the Andhra crisis.

This cluster formation is restricting MFIs from reaching to rural areas where there is the actual need for microfinance. People in urban and semi-urban areas are already having access to microfinance through SHG-bank linkage or individual lending, but in rural areas people don't have access to banks and so SBLP is not much active in such areas. Because of the initial cost involved in serving a new location, MFIs are not willing to go to such remote locations. This is the reason most of the MFIs have their branches in urban and semi-urban areas only resulting in a very low rural penetration of microfinance.

It is high time for the MFIs to understand that though microfinance is a resalable product, increasing the outreach of the microfinance sector by including new clients and serving new locations is what which is needed the most at the moment.

### **14. Multiple Lending and Over-Indebtedness**

Both of these are outcome of the competition among the MFIs. Microfinance is one such sector where the Neo-liberal theory of free market operation fails, at least to some extent. Though competition is good for many sectors but in this case it is going against both the parties. In order to eat away each others' market share, MFIs are ending up giving multiple loans to same borrowers which in some cases is leading to over-indebtedness (a situation where the borrower has taken loans more than her/his repaying capacity) of the borrower. MFIs are getting affected because borrowers are failing to make payments and hence their recovery rates are falling, while over-indebtedness is making the borrower go to depression and in some cases forcing them to commit suicide.

Some experts advocate that multiple lending is not but over-indebtedness is dangerous. This may be true but multiple lending is eating away the opportunity of new borrowers, and in a country where it is believed that the microfinance sector is able to cater to only 10-15 percent of its potential clients, even multiple lending proves out to be a big concern.

### **Summary**

MFIs should mull over the way that not all members graduate into microfinance, and regardless of whether they do there are some who still return into down and out destitution after some time. This does not really show that there is blame with the program itself; then again it might be on the grounds that the specific member isn't business-disapproved, for example. Another reason might be that members are excessively poor and they are dominantly needing nourishment and water to live and this is their principle center instead of setting up business. The third reason is chiefly a statistic one, which identifies with older and extremely handicapped individuals who are not ready

to get to the programs. Rather, help to these individuals must be on an across the country level through arrangement of fundamental social insurance and nourishment and water.

#### **Useful Links**

- [www.yearofmicrocredit.org](http://www.yearofmicrocredit.org)
- [www.sharemicrofin.com](http://www.sharemicrofin.com)
- [www.sksindia.com](http://www.sksindia.com)

#### **Model Questions**

1. Discuss the various business models of micro finance system.
2. Explain the evolution of micro finance system.
3. Examine the statement 'Micro finance is help for the poor'- Comment
4. Discuss the role of micro financial institutions to help build rural development.
5. Critically examine the weakness/ problems in MF system in India.

#### **To Do Activity**

- To conduct study on business model of different micro finance institutions.
- To collect the information about MFI focus on women empowerment.

# Chapter 5 Rural Insurance and Finance Schemes

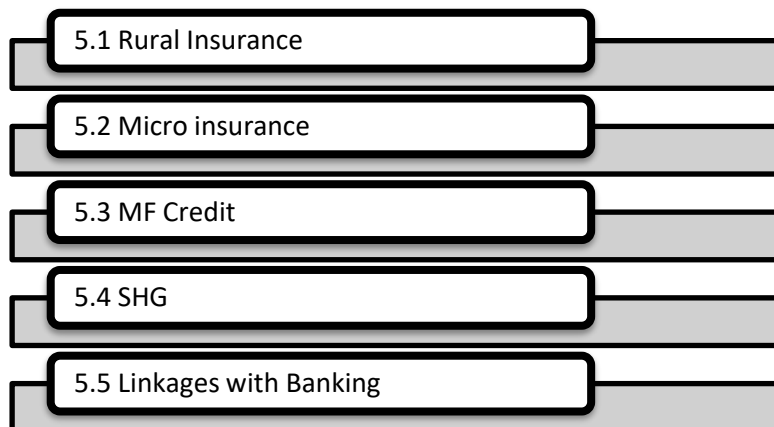
## Introduction

The distinctive feature of a micro-or rural insurance product lies in its applicability and value to its intended audience. In addition to being affordable, the success of the product depends on how it helps to solve the core problem for a customer. Rural insurance offers a unique opportunity to develop solutions that are relevant to the target audience, especially because of the nature of the occupations in these places. Insurance is all about repairing the financial loss caused by the death/destruction of income-generating assets due to natural or accidental factors. Inadequate resources prevent the extension of social protection to the general population in emerging economies. Micro-insurance can balance social security and add value to other policy objectives, such as climate change adjustment, improved agricultural production, universal health coverage, market failure management, gender equality and economic growth. It is no wonder that governments use insurance as a means to achieve public policy objectives. A combination of policy and regulation should be used to foster market development and provide better access to insurance.

## Objectives

This chapter will enable you to develop an understanding of the following.

- Importance and Features of Rural Insurance
- Micro Finance Systems in India
- MF Credit and SHG Growth



## 5.1 Rural Finance

### Rural Definition

Although 'rural' areas have been analyzed in many countries for decades, there is no commonly accepted definition. Some organizations use population density as their main distinguishing factor. For example, the OECD classifies a community as 'rural,' when it has less than 150 inhabitants per square kilometer. The International Fund for Agricultural Development (IFAD) defines 'rural' in two main characteristics. Firstly, rural people generally live on farms or in groups of houses containing perhaps 5,000–10,000 people, separated by farms, pastures, trees or scrublands. Second, the

majority of rural people spend most of their time on farms.

According to the IRDA, Rural sector can only be defined as such only if it fills the following categories (according to the last census)

- Has a population of less than 5000
- The density of population in the area must not be more than 400 per square kilometer.
- A minimum of 75% of the male working population must be engaged in agriculture related work.

The Indian law states that insurance companies should be accommodative of persons in the rural sector or social sector, persons in the economically vulnerable or backward classes of the society, workers in the unorganized or informal sector etc. (as specified by the IRDA). In the Insurance Act, 1938, sections 32–B and 32–C is where this particular law can be found. It defines the percentage of business that insurance companies are expected to put aside for the persons in the categories mentioned above. Further, the IRDA has tried to accommodate the two sections of the Insurance Act by making it compulsory for insurers who offer general insurance to support business in the rural sector as well. The IRDA has specified a minimum of 2% of total gross premium during the first financial year, a minimum of 3% of gross premium in the second financial year and a minimum of 5% of the gross premium in the third and additional financial years. The plan must include insurance for crops.

#### **Insurance Acts**

- The insurance Act 1938
- Life Insurance Corporation Act, 1956
- General Insurance Business (Nationalization) Act, 1972
- Insurance Regulatory and Development Authority (IRDA) Act, 1999.
- Various programmes have been launched by the Government of India for the benefit of marginal farmers, small farmers, agricultural labourers, etc. Integrated Rural Development Programme (IRDP) have integrated these programmes since 1980 with the help of funding from the Central and State governments.

#### **Objectives of the Rural Insurance**

- The main objective of the program is to ensure that working capital and assistance are provided to the rural families involved in the form of income-generating assets, etc.
- Institutional loans, subsidies etc. shall be offered for the same purpose.
- The beneficiaries of IRDP projects are protected by special insurance schemes.
- The policies include reduced premium rates and simplified claims procedures.

#### **Rural Insurance Features and Benefits**

The following can be insured under rural policies

- Sub-animals including honeybee, silkworm etc.
- Livestock including sheep, cattle, goat, etc.
- Property. For example agricultural pump sets, etc.
- Plantation and horticultural crops including grapes, rubber trees etc.
- Persons. For example Gramin accident.

#### **Sum Insured**

The market value of cattle may vary according to race, time and area. A qualified veterinarian

recommends the insured amount based on the market value of the particular animal. The animal's safety is based on market value or insured sum, whichever is less. For scheme animals, the policy is issued as an agreed value policy and claims are settled for 100% of the sum insured.

### **Premium**

For non-scheme animals, premium rates are higher than for scheme animals. This includes mainly crossbred/indigenous animals. Higher rates will be charged for exotic animals. Long term discounts and group discounts are available. In case of adverse claims experience, there is a possibility of increasing the renewal premium.

### **Rural Insurance Opportunities and Challenges**

The insurance sector itself has also made little progress in the rural sector. The insurance market in India, liberalized in 2000 with the advent of private insurance companies in November 2000, has not expanded in real terms beyond the urban domain. The penetration of insurance in India is pitifully low, and if we are to achieve a modest insurance premium target of 5 percent of GDP, insurance companies need to look at new market segments rather than fight for a share in the same pie.

- Stagnation in Agricultural Growth
- Deceleration in the growth rate of agricultural production
- Stagnation in yields of important crops, with larger intake of modern inputs
- Disappointing performance of commercial crops
- Large fluctuations in the output prices
- Rural Insurance covers the following category of people
  - Farmers
  - Craftsmen
  - Milkman
  - Weaver
  - Casual labours
  - Construction workers

### **Insurance information**

#### **1. Delivery Systems**

- **E-Choupal**  
This is an internet-based co-ordination point for purchase of agricultural produce and a forum for agricultural information and interaction, particularly for affluent farmers
- **Post Office**  
This institution is very highly trusted by the rural population with access to the smallest villages
- **Agent Network**  
As Insurance customers rely on personal interactions and a high level of service, some degree of rural agent network is a must.
- **Commercial/ Co-operative Grameen / RRBs**  
Banks are viewed as 'safe' institutions to invest in and any tie up would enhance the credibility of insurers and their agents

#### **2. Information Network**



- **Self Help Groups/ Youth Clubs/ Co-operative Societies**  
These are various rural forums that meet regularly at the village, Chapter and district levels and can be used for promoting group insurance.  
Once the group leadership approves the insurance company, members will be more inclined to accept its insurance products.
- **Producers Cooperative Societies**  
Producers' co-operative societies are rural forums for interaction/information and finance for farmers. Regular meetings are held and can be used as a group platform to sell policies (specifically accident/ crop/health policies) to members.
- **NGOs**  
NGOs working in micro-finance with grass-root reach, trust and credibility can be used to access members of Self Help Groups who would then be more inclined to purchase from the private player.

### **Few important Rural Insurance Policy Schemes.**

#### **Kissan Package Policy**

This policy contains 15 sections, including sections of the tariff and market agreements, which will fully meet the likely insurance needs of different categories of farmers. Section 1a & b covering fire and allied hazards, burglary and house breakage is compulsory and the farmer must opt for a minimum of 3 sections. If farmers opt for more than 4 and up to 6 sections, a 15 percent discount on non-tariffs is available, a non-market agreement premium is available. For more than 6 and up to 8 sections, the above 20 percent discount is available. For more than 8 section 25 percent discount as above is available. The 15 sections are as below.

#### **Section 1 Building and Contents**

This section has 2 sub-sections

- 1a. Fire and allied threats, terrorism cover building and contents
- 1b. Burglary and house breaking for content excluding money and valuables.

#### **Section 2 Stock of Farm Products**

This provides compensation for damages to the stock of farm products against fire and associated hazards, but unprocessed grains kept in the field immediately after harvesting for post-harvest operations are covered by the KhalihanBima Policy.

#### **Section 3 Television**

This covers loss of television and insured premises by fire and allied hazards, burglary, house breakage, theft, accident or electrical breakdown, legal liability up to 25,000/-, damage to insured property caused by breakage of antenna fitting for a limit up to Rs.3,000/-.

#### **Section 4 Pedal Cycle/Cycle Rickshaw**

This provides compensation for damage to cycle rickshaw due to accident, third party legal liability to drivers, passengers and property. It also provides personal accident cover for rickshaw owner and family for an additional premium.

#### **Section 5 Personal Accident Insurance**

This section provides coverage against death and permanent disability, both partial and total, as per JPA or Gramin policy.

#### **Section 6 Village/Cottage Insurance for Craftsmen, Small Sectors Including Biogas**

This provides compensation for the loss or damage to the structure of the building contents by fire

and associated threats. Original investment in equipment and machinery should not exceed Rs.5.00 lacs and the total risk value, including construction and machinery, inventory and stock in process, should not exceed Rs.10.00 lacs.

#### **Section 7 Cattle & Livestock Insurance**

Under this insurance, animals are covered against death due to disease or accident (including fire/lightning/famine/flood cyclone) surgery, strike, riot, risk of civil commotion. As per our livestock insurance policy.

#### **Section 8 Kissan Agricultural Pumpset**

This insurance covers both centrifugal (electric/diesel) and submersible pump sets up to 25 HP. Fire and lightning loss or damage, theft/burglary (due to violent forcible entry provided the pump set is kept in a locked enclosure), mechanical/electrical breakdown, RSMD and terrorism, as per our Kisan Agricultural Pump set Insurance Policy.

#### **Section 9 Poultry/Duck Insurance**

This cover is available for the poultry/duck farm owned by farmers. This insurance covers all types of exotic and cross-breed poultry birds and ducks against death from accidents (including fire, lightning, famine, riot and strike and civil commotion) or diseases such as diseases as per our Poultry Insurance Policy.

#### **Section 10 Baggage Insurance**

This insurance indemnifies the insured against loss or damage to accompanying baggage by accident or misfortune (lost or destroyed) while the insured is traveling anywhere in India. Section

#### **Section 11 Animal Driven Cart Insurance**

This insurance covers carts, tongues and coaches drawn by buffaloes, bulls, bullocks, horses, mule, donkeys and camels and also animals pulling them.

#### **Section 12 Honey Bee Insurance**

This section provides insurance for Beehives and bee colonies against loss/damage as a result of an accident (basic coverage), including fire, flooding, storm, cyclone, hurricane and tornado.

#### **Section 13 Gun Insurance**

This section is intended to cover loss or damage to guns belonging to the insured for any reason (including the bursting of barrels except during testing and excluding wear and tear) up to an amount not exceeding the declared value.

#### **Section 14 Medical hospitalization expenses excluding home hospitalization**

This scheme provides compensation for expenses incurred in hospitalization subject to the limits of the sum insured.

#### **Section 15 Agricultural Tractor Insurance**

This indemnifies insured against losses by fire, explosion, self-ignition, burglary, house breaking, theft, riot and strike, earthquakes, fire and shock, flooding and flooding, typhoon, hurricane, storm, storm, cyclone, hailstorm, frost, landslide, rockslide, accident, malicious act, terroir insurance It also includes liabilities of third parties under the Motor Vehicle Act 1988.

#### **Other Rural Insurance Schemes**

- Bhagyasree Child Welfare Policy
- Cattle Insurance
- Cycle Rickshaw Insurance Policy
- Dog Insurance

- Fish In Ponds (Embankments)
- Insurance Of Fish In Ponds
- Gramin Accident Insurance
- Janata Personal Accident Policy
- Khalihan Insurance Package Policy
- Kissan Agricultural Pumpset Insurance
- Kissan Package Insurance Policy
- Poultry Insurance
- Rabbit Insurance
- Plantation/Horticulture Insurance
- RajrajeshwariMahila Kalyan BimaYojna (New)
- Sericulture (Silkworm) Insurance
- Tea Plantation Insurance
- Universal Health Insurance Scheme

## 5.2 Micro Insurance

Micro insurance is specifically designed for the protection of low -income people, with affordable insurance products to help them cope with and recover from common risks. It is a market-based mechanism that promises to support sustainable livelihoods by empowering people to adapt and withstand stress. Two -thirds of human beings suffering in the most extreme poverty are women. Often living within \$1 per day, they are the most vulnerable.

The definition of micro insurance in India is primarily a product-based, monetary one. The regulation sets the boundaries of the cost and coverage of the product and provides clarity about distribution mechanisms.

India is one of the first countries to adopt micro insurance formally through the Micro insurance Regulations Act in 2005. The regulation sets boundaries for the cost and coverage of the product and provides clarity about distribution mechanisms. Insurers in the private sector, while meeting the obligations, have brought in significant innovations in products and processes to serve the poor, such as

- Co-payment models
- Increasing client value with products such as health screening, tele-medicine, no claim discounts
- Mobile enrolments;
- Exploring exciting distribution channels such as internet kiosks;
- Introducing products such as weather-based insurance, rainfall-index insurance.

### History of Micro Finance in India

In India, a number of micro-insurance schemes were initiated, either by non-governmental organizations (NGOs) because of the felt need in the communities in which these organizations were involved or by the trust hospitals. These schemes have now gained momentum, partly because of the development of microfinance activities and partly because of the regulation making it mandatory for all formal insurance companies to extend their activities to the rural and well-identified social sector in the country (IRDA 2000).

As a result, Micro Finance Institutions (MFIs) and NGOs negotiate with profit insurers to purchase a customized group or standardized individual insurance schemes for low-income people. Although the scope of such schemes is still very limited, their potential is considered to be considerable. The 2005 Micro-Insurance Regulation was a pioneering approach by the Insurance Regulatory Development Authority (IRDA). India is among the few countries to draft and implement specific micro-insurance regulations. In 2002, IRDA developed rural and social sector obligations standards mandating every insurance company to achieve the following objectives

- Percentage of policies to be sold in rural areas.
- Number of lives to be covered in the social sector.

A consultative group on micro insurance was set up in 2003 to look into the issues which highlighted the

- Non-viability of standalone micro insurance programme;
- Apathy of insurance companies towards micro insurance; and
- The potential of alternative channels.

In 2004, RRBs were allowed to sell insurance as “corporate agent”, and in 2005, IRDA came up with the micro insurance regulation which suggested

- Stipulation of product boundaries in terms of minimum and maximum sum assured, the term of product, the allowable age group and the maximum commission to agents;
- SHGs, MFIs and NGOs were allowed to become Micro insurance Agents (MIA), a status that has simple agency clearance process and sustainable long term earning potential
- Fulfilment of both rural and social sector obligation through micro insurance products.

### **Types of Micro Finance**

- **Life Insurance**

Life insurance pays benefits to designated beneficiaries upon the death of the insured. There are three broad types of life insurance coverage term, lifetime and endowment. Term life insurance policies provide a fixed amount of insurance coverage over a specified period, such as one, five, ten or twenty years. Whole life insurance is a cash value policy that provides lifetime protection. This is hardly offered on low-income markets in developing countries. Endowment life insurance pays the insurance face value if the policyholder dies within a specified period.

- **Health Insurance**

Health insurance provides coverage against disease and accidents resulting in physical injuries. MFIs have realized that health-related expenditure is a major cause of defaults and people's inability to continue improving their economic conditions. Therefore, several MFIs have either started their own health insurance programs or have linked their clients to existing programs.

- **Property Insurance**

Property insurance provides coverage against loss or damage to assets. Providing such insurance is difficult because of the need to verify the extent of the damage and to determine whether the loss has actually occurred.

- **Disability Insurance**

In most cases, disability insurance is linked to life insurance products. It provides protection

for the policyholder and her family, should she or some of her family suffer from a disability.

- **Crop Insurance**

Crop insurance typically provides policyholders with protection if their crops are destroyed by natural disasters, such as floods or droughts. In order to improve rural farmers' ability to repay loans from agricultural development banks (ADB), many governments developed crop insurance programs in the 1970s and 1980s.

- **Disaster insurance**

Disaster insurance is a reinsurance arrangement that extends the risk pool across countries and regions and protects insurers against catastrophic losses.

- **Unemployment Insurance**

This insurance provides cash relief to individuals who are unintentionally unemployed and who meet certain government requirements. It also helps unemployed workers to find jobs.

- **Reinsurance**

Reinsurance is the transfer of part or all of the insurance originally written by one insurer to another. This is a central feature of all commercial insurers' operations.

### **Micro Insurance Delivery Model**

- **Partner Agent Model**

Partnership is formed between the micro-insurance scheme and an agent (insurance company, micro-finance institution, donor, etc.) and in some cases a third-party healthcare provider. The micro-insurance scheme is responsible for the delivery and marketing of products to customers, while the agent retains all responsibility for design and development. In this model, micro-insurance schemes benefit from limited risk but are also disadvantaged by their limited control.

- **Full Service Model**

The micro-insurance scheme is responsible for everything, designing and delivering products to customers, working with external healthcare providers to provide services. This model has the advantage of offering full control of micro-insurance schemes, but the disadvantage of higher risks.

- **Provider-Driven Model**

The healthcare provider is the micro-insurance system and, similar to the full-service model, is responsible for all operations, delivery, design and service. Once again, there is an advantage in the amount of control retained, but the limitations on products and services are disadvantageous.

- **Community-Based / Mutual Model**

The policyholders or clients are responsible for managing and owning the operations and for providing services with external healthcare providers. This model is advantageous for its ability to design and market products more easily and efficiently, but is disadvantaged by its small size and scope of operations.

### **Invest India Micro-Pension**

A Case Invest India Micro Pension (IIMP) was born in 2007 to expand the UTI and SEWA Bank pension program for the unorganized sector. Some major IIMP initiatives to date have been the implementation of a web-based centralized transactional and administrative platform (called sCube) for micro-pension and micro-insurance in 7 Indian states. Pension scheme for Delhi auto rickshaw

drivers. Launch of co-contribution based micro pension with the government of Rajasthan (Vishwakarma Yojana).

Technical assistance to the Pension Funds Regulatory and Development Authority (PFRDA) to implement the New Pension Scheme in the informal sector. Working with the Ministry of Overseas India, the development of a contribution pension scheme for low - income migrants in 17 countries.

#### **Potential Market Size of Micro insurance in India**

Life	Rs.15.39 to 20.14 billion per year
Health	Rs.13.42 to 17.89 billion per year
Crop	Rs.9.76 to 13.01 billion per year
Livestock	Rs.5.86 to 8.2 billion per year
Total Micro insurance market	Rs.62.30 to 84.27 billion per year
Pension for unorganized workforce	Rs.201.3 billion (US\$2.5billion) per year

**Source:** “Potential and Prospects of Micro insurance in India; UNDP Regional Centre of Human Development Unit 2009, “Pension Reforms for Unorganized Sector; ADB, 2006 and IIMS Data Works Survey 2008.

#### **Innovation in Life Micro Insurance**

Max Vijay the key features of Max - Vijay are

It is a 10-year investment product with five times the annual premium as Sum Assured 60 - 90 percent of the investment in government securities Renewal premium can be submitted at any time, in any denomination of Rs.10, sold as Vima Coupon Sell through referral agents, which are grocery stores, neighborhood shops and Kirana shops.

### **5.3 Micro Credit**

According to International Labor Organization “Micro Finance is an economic development approach that involves providing financial services through institution to low income clients”.The meaning of “Finance” is management of money. Microfinance institutions (MFIs) typically offer a variety of loan products and, increasingly, savings services as well.

Microfinance can play an important role in making financial markets work for the poor. Access to financial services may help the poor to better manage risks and to smooth income and consumption over time, without having to resort to child labor.

Microfinance is the provision of a broad range of financial services such as deposits, loans, payment services, money transfers and insurance to the poor and low income households and their micro-enterprises. Microfinance is defined as “Financial Services (savings, insurance, fund, credit etc.) provided to poor and low income clients so as to help them raise their income, thereby improving their standard of living”.

Micro-financing is regarded as a tool for socio-economic up-liftmen in a developing country like India. It is expected to play a significant role in poverty alleviation and development. Mohammed Yunus was awarded the Noble Prize for application of the concept of microfinance, with setting up of the Grameen Bank in Bangladesh.

Micro credit and micro finance are different. Micro credit is a small amount of money, given as a

loan by a bank or any legally registered institution, whereas, Micro finance includes multiple services such as loans, savings, insurance, transfer services, micro credit loans etc.

An NBFC-MFI is defined as a non-deposit taking NBFC (other than a company licensed under Section 25 of the Indian Companies Act, 1956 or Section 8 of the Indian Companies Act, 2013.) with Minimum Net Owned Funds of Rs.5 crore (for NBFC-MFIs registered in the North Eastern Region of the country, it will be Rs. 2 crore) and having not less than 85% of its net assets as “qualifying assets”.

“Net assets” are defined as total assets other than cash and bank balances and money market instruments.

“Qualifying Asset” shall mean a loan which satisfies following criteria-

- Loan disbursed without collateral by an NBFC-MFI to a borrower with a household annual income not exceeding Rs. 1,00,000 (rural) or Rs. 1,60,000 (urban and semi-urban).
- Total indebtedness of the borrower does not exceeding Rs. 1,00,000 provided that loan, if any availed towards meeting education and medical expenses shall be excluded while arriving at the total indebtedness of borrower.
- Loan amount does not exceed Rs. 60,000 in the first cycle and Rs. 1, 00,000 in subsequent cycles.
- Tenure of the loan not to be less than 24 months for loan amount in excess of Rs. 15,000 with prepayment without penalty. Loan is repayable on weekly, fortnightly or monthly installments at the choice of the borrower.

#### **Features of MFI**

- It is an essential part of rural financing.
- It deals with small loans.
- It basically addresses the poor households.
- It is one of the most effective and justified poverty alleviation strategies.
- It supports women's participation in electronic activity.
- It provides an incentive to seize self-employment opportunities.
- It is more service-oriented and less profit-oriented.
- It is intended to help small entrepreneurs and producers.
- Poor borrowers are rarely defaulters in the repayment of loans, as they are simple and fearful of God.
- India needs to establish several micro-finance institutions
- MFI go to clients rather than Clients going to MFI(s)
- Small size of loan and make it easy for re-payment
- Generally, it is collateral free
- It is a tool for social change, especially for women.
- Microfinance believes that poor people need a broad set of financial services apart from just loans.
- It also holds that these financial services should be simplified, easily accessible, economical, and flexible in nature.
- These services include cash transfer facilities, savings schemes with minimal or zero deposit, and micro insurance.

### **Advantage of MFI**

- Micro Finance is a powerful instrument for society. It helps the needy person to do business or generate income.
- MFI(s) trying to eliminate the poverty by providing loan for doing new business or funding to existing business.
- It generates employment in the country. It improves the quality of education in the society

### **Disadvantage of MFI**

- More man power required
- Borrowers are mainly poor people and many of them are not educated and it may require a lot of tutoring.
- The deal is too small for lender and it requires more time and money for due diligence.
- As the Capital is low the profits is also low.
- Progress of MFI(s) depends on number of borrowers.

### **Different Types of Microfinance Institutions in India**

The microfinance models are developed in order to cope with the financial challenges in financially backward areas. There are various types of microfinance companies operating in India.

#### **Joint Liability Group (JLG)**

Joint Liability Group can be explained as the informal group consists of 4-10 individuals who try to avail loans against mutual guarantee from banks for the purpose of agricultural and allied activities. This category generally consists of tenants, farmers and other rural workers. They work primarily for lending purposes, although they also offer the savings facility.

#### **Self Help Group (SHG)**

Self Help Group is a type of formal or informal group consisting of small entrepreneurs with similar kind of socio-economic backgrounds. Such individuals temporarily come together and generate a common fund to meet the emergency needs of their business. These groups are generally non-profit organizations. The group assumes the responsibility of debt recovery. The advantage of this micro-lending system is that there is no need for collateral. Interest rates are also generally low and fixed especially for women. In addition various tie-ups of banks with SHGs have been implemented for the hope of better financial inclusion in rural areas.

#### **The Grameen Bank Model**

Grameen Model was introduced by the Nobel laureate Prof. Muhammad Yunus in Bangladesh during 1970s. It has been widely adopted in India in the form of Regional Rural Banks (RRB). The goal of this system has been the overall development of the rural economy which generally consists of financially backward classes. But this model has not been fully successful in India as rural credit and system of recovery are a real problem. Huge amount of non-performing assets also led to failure of these regional banks. Compared to this model Self Help Groups have been more successful as they are more suited to the population density of India and far more sustainable.

#### **Rural Cooperatives**

Rural Cooperatives in India were set up during the time of independence by the government. They



used the mechanism to pool the resources of people with relatively small means and provide financial services. Due to their complex monitoring structure, their success has been limited. In addition, this system only catered to the credit-worthy individuals of rural areas, not covering a large part of the country's financially backward section.

#### **Federated Self-Help Groups (SHGs) or SHG Federation model**

A normal self-help group (SHG) is typically consistent of a few members with the aim of making each member self-sufficient with adequate funds and high-quality equipment to produce first-class output. It is usually small in size. Due to the success of these groups, there was a need for a large-scale self-help group. This led to the establishment of federated self-help groups. A federated self-help group refers to a large scale self-help group with a large number of members. It is a federation of multiple self-help groups. A federation of self-help groups will have around 1000 to 2000 members whereas a single self-help group will have only up to 20 members.

#### **Rotating Savings and Credit Associations (ROSCAs) model**

Under this model, funds are offered to groups of individuals through unconventional means. The members of such associations include individuals who have certain common features such as ethnicity, community, language, professions, occupations, etc. These members contribute funds on a regular basis and utilize them for attaining a common goal.

#### **Microfinance Companies**

In India, microfinance companies can be registered as a non-banking financial company (NBFC) under Companies Act or Reserve Bank of India (RBI). An NBFC engages in accumulating funds and using them for offering credit and other financial services to other people. An NBFC generally provides personal loans, car loans, two-wheeler loans, crop loans, agricultural loans, and lots more. Non-banking financial companies can offer both regular loans as well as micro loans to the less fortunate people of the society. These NBFCs can be regulated by the Reserve Bank of India (RBI) or the Companies Act.

**Examples** Annapurna Microfinance Pvt. Ltd., BSS Microfinance Pvt. Ltd., Equitas Microfinance Pvt. Ltd.

### **5.4 Self Help Groups**

The Self-Help Groups or short SHGs is now a well-known concept. It's almost two decades old now. It is reported that SHGs play a role in accelerating the economic development of the country. SHGs have evolved as movement now. Mainly SHG members are women. As a result, women's participation in the country's economic development is increasing. They also play an important role in increasing the economic status of their families. This has boosted the women's empowerment process.

Self Help Groups are groups of 10-20 people in a locality formed for any social or economic purpose. Most of the SHGs are formed for the purpose of better financial security among its members. SHGs can exist with or without registration.

SHGs in India often work in association with Banks (SHG – Bank Linkage Programme). The same is basis of Indian Micro finance Model too. SHG – Bank Linkage was started in India in 1992 under the guidelines of NABARD and Reserve Bank of India.

The Self-Help Group refers to a self-governed, peer-controlled, informal group of people with the same socio-economic background and a desire to collectively achieve common purposes. In this case, poor people voluntarily come together to save whatever amount they can conveniently save from their earnings, to agree to contribute to a common fund and to lend to members to meet their productive and emerging needs.

SHGs were able to mobilize small savings from people who were not expected to save on a weekly or monthly basis. They have been able to effectively recycle the resources generated by the members to meet the emerging credit needs of the members of the group.

### **Origin of SHGs**

Self-help groups are popular and famous in India and South-East Asian countries. In Bangladesh, Muhammad Yunus developed this concept (along with those of micro-credit and micro-finance) for the poorest of the poor, who were ignored and shunned by banks when it came to lending tiny sums of money.

- In India, SHGs first emerged within the Mysore Resettlement and Development Agency (MYRADA) in 1985. Here is a quick timeline of the journey of SHGs in India
- 1987 The National Bank for Agriculture And Rural Development (NABARD) provided MYRADA with a grant of ₹1 million to enable it to invest resources in identifying affinity groups, building their capacities and matching their savings after a period of 3-6 months.
- 1990 RBI accepted the SHG strategy as an alternative credit model.
- 1992 NABARD issued guidelines to provide the framework for a strategy that would allow banks to lend directly to SHGs.
- 1992 SHG-Bank Linkage Programme was launched.

### **Features of Self- Help Groups**

- Not all problems can be solved alone.
- SHG is a form of enterprise.
- They play the role of collective banks.
- They mobilize members ' savings and perform both debit and credit functions.
- For external credit, SHG links to banks, i.e. SHG-Bank links. Now SHGs also connects with companies, i.e. SHG-Corporate links. For women SHGs, the government provides interest subsidies.
- Importance of SHGs—Increased income of the poor through collective performance.

### **Role of Self - Help Groups**

- Revenue generation for the poor.
- Access to poor banks, financial inclusion.
- Against Dowry, alcohol, etc.
- Gram Panchayats Pressure Group.
- Social upgrading of marginal sections.
- Women's upliftment.

### **Objectives of SHG**

- To inculcate the savings and banking habits among members.

- To secure them from financial, technical and moral strengths.
- To enable availing of loan for productive purposes.
- To gain economic prosperity through loan/credit.
- To gain from collective wisdom in organizing and managing their own finance and distributing the benefits among themselves.
- To sensitize women of target area for the need of SHG and its relevance in their empowerment.
- To create group feeling among women.
- To enhance the confidence and capabilities of women.
- To develop collective decision making among women.
- To encourage habit of saving among women and facilitate the accumulation of their own capital resource base.
- To motivate women taking up social responsibilities particularly related to women development.
- It acts as the forum for members to provide space and support to each other.

### **The SHGs Generally go through Three Stages of Evolution**

- I. Group formation.
- II. Capital formation (via the revolving fund).
- III. Development of skills and economic activity for income generation.

As SHG is formed under the Swarna Jayanti Swarojgar Yojana (SGSY), the subsidy for SHGs would be 50 percent of the project cost subject to a ceiling of Rs. 1.25 lakh or a capital subsidy of Rs. 10,000, whichever is less. There is no monetary ceiling on subsidies for small irrigation projects for SHGs, as well as individual swarojgars (self-employed).

The program evolved as a national movement in 2011 and became the National Rural Livelihoods Mission (NRLM), the world's largest poverty alleviation programme. State Rural Livelihood Missions (SRLMs) are currently operational in 29 states and 5 UTs (except Delhi and Chandigarh, Source NRLM website). SRLMs work hard to form, nurture and strengthen SHGs. By design, NRLM is more focused, time-bound and results-based. In November 2015, the program was renamed DeendayalAntyodaya Yojana (DAY–NRLM).

The SHG movement in India gained momentum after 1992, when NABARD realized its potential and began to promote it. In addition, state governments in four southern states, Andhra Pradesh (undivided), Karnataka, Tamil Nadu and Kerala established separate organizations (Society for the Elimination of Rural Poverty in AP) led by a senior bureaucrat and managed by development professionals. In 1999, the Government of India introduced Swarn Jayanti Gram Swarojgar Yojana (SGSY) to promote self-employment in rural areas through training and skills of SHGs.

**Table 5.1 Self Help Groups – An Overview**

<p><b>A. Strategy</b></p>	<ul style="list-style-type: none"> <li>• Conceived as a holistic programme of self-employment. It covers all the aspects of self-employment of the rural poor, viz. organizing them in SHGs, their capacity building selection of key activities, planning of activity clusters, infrastructure build-up, technology and marketing support.</li> </ul>
<p><b>B. SHG Formation</b></p>	<ul style="list-style-type: none"> <li>• Specifically SHG members from BPL families with some exception for a few marginal APL families if acceptable to the BPL members of the group.</li> <li>• Group size of 10-20 persons, with the exception of deserts, hills and disabled persons where the number of members may vary from 5 to 20.</li> <li>• Special focus on the formation of exclusive women Self-Help Groups. 50% of the groups formed in each Chapter should be exclusively for women.</li> <li>• SHGs are normally formed by NGOs, CBOs, Animators, Network of Community-based Coordinators, or team of dedicated functionaries of the government.</li> </ul>
<p><b>C. Income Generating Activities (Microenterprise selection)</b></p>	<ul style="list-style-type: none"> <li>• SGSY Committee identifies about 8-10 farm and non-farm key activities per Chapter for the individual/SHG Swarozgaris of the Chapter to choose some of them as the sustainable income- generating activity for themselves.</li> <li>• Primarily, single income-generating activity by the group is given preference under group loan. Group, however, may go for multiple activities also under group loaning. Thus, IGAs are taken by the SHG members as a group activity.</li> <li>• The focus is on the development of activity cluster to facilitate forward and backward linkages to IGAs.</li> </ul>
<p><b>D. Promotional Support</b></p>	<ul style="list-style-type: none"> <li>• Revolving Fund Assistance (RFA) is provided to groups equal to their group corpus within the prescribed limit.</li> </ul>
<p><b>(i) Financial Support</b></p>	<ul style="list-style-type: none"> <li>• Back-ended subsidy to the extent of 30% to 50% of the project cost is provided to individual beneficiary, and 50% of the project cost for group Level activity is provided within the prescribed limits.</li> </ul>
<p><b>(ii) Group Formation and Nurturing Support</b></p>	<ul style="list-style-type: none"> <li>• Financial Assistance is provided to NGOs/CBOs/SHPI, etc., for formation and development of SHGs, as mentioned below.</li> <li>• Rs10,000 per SHG is paid for the formation and development of SHGs in four installments.</li> <li>• 1st – 20% at the beginning of the group formation.</li> <li>• 2nd – 30% when group qualifies for Revolving Fund.</li> <li>• 3rd – 40% when group takes up economic activity.</li> <li>• 4th --10% after the start of economic activity and on adherence of group to repayment of bank loan.</li> </ul>
<p><b>(iii) Capacity Building Support</b></p>	<ul style="list-style-type: none"> <li>• Fund support is made available to organize training of beneficiaries in group processes and skill development.</li> </ul>
<p><b>(iv) Infrastructure Building Support</b></p>	<ul style="list-style-type: none"> <li>• There is planned focus on infrastructure build- up, technology and marketing support to make self-employment activity economically sustainable.</li> </ul>

## 5.5 Linkages with Banking

There is an ever-increasing need to invest in agriculture due to a drastic increase in the global population and the changing dietary preferences of the growing middle class in emerging markets for higher value agricultural products. In addition, climate risks increase the need for investment to make agriculture more resilient to such risks. Estimates suggest that food demand will increase by 70 percent by 2050 and at least \$80 billion annual investment will be needed to meet this demand, most of which needs to come from the private sector. In developing countries, financial sector institutions lend a disproportionately lower share of their loan portfolios to agriculture compared to agriculture.

On the other hand, the growth and deepening of agricultural finance markets is constrained by a variety of factors including,

- Inadequate or ineffective policies
- High transaction costs to reach remote rural populations
- Covariance of production, market and price risks
- Lack of adequate risk management instruments
- Low demand levels due to fragmentation and incipience.

Credit is an important tool for rural development. Most agricultural tasks still depend on manual labor. It also involves outdated techniques that result in low outputs. Investment in rural areas has been low, which effectively results in low output and productivity in all types of activities. A capital infusion to boost productivity in relation to both agricultural and non-agricultural activities can be achieved by reforming the credit and banking system. During the gestation period between sowing and harvesting seasons, farmers need credit to meet their general needs, initial requirements, etc. The difference in monetary activities of rural people in relation to urban people led to NABARD (National Bank for Agricultural and Rural Development), in addition to the presence of RBI. The post-independence period saw the exploitation of rural poor people in need of credit by moneylenders and traders. Loans were granted at very high interest rates, which ultimately pulled defaulters into a debt trap, robbing them of credit. To stop this exploitation, NABARD was established to provide easy credit to rural areas.

### Rural Development in India

Rural development is a topic which is pretty easy to understand but hard to implement. It focuses upon the upliftment and development of the sections of rural economies, that experience grave poverty issues and effectively aims at developing their productivity. It also emphasizes the need to address various pressing issues of village economies that hinder growth and improve these areas. Some areas that need urgent attention for Rural Development in India are.

- Public health and sanitation
- Literacy
- Female empowerment
- Enforcement of law and order
- Land reforms
- Infrastructure development like irrigation, electricity etc.
- Availability of credit
- Eradication of poverty

### **Helping Hand of SHGs**

Although NABARD has been proving to be a step in the right direction, the problem with formal banking system is that some kind of collateral is required. The rural poor in need of urgent credit, don't generally possess any collateral. Consequently, they are ruled out of the formal banking system. To help such kind of people self-help groups (SHG) emerged on the scene. They are successfully bridging the gap between formal credit system and rural poor.

### **Rural banks System in India**

In rural India, the banking and credit system has come a long way. With credit available at low interest rates through NABARD operations and microcredit generation by the various self-help groups, fewer poor people fall into the debt trap. After the advent of the green revolution, productivity in agriculture increased. Essentially modern techniques, high yield seeds, sustainable activities, etc. have promoted productivity and output.

### **Rural Financial Intermediation**

Currently an institutional rural credit system consisting of approximately one lakh primary agricultural credit company (PACS), 108 regional rural banks (RRBs) with more than 30,000 branches spread across rural India, approximately 20,000 commercial bank branches providing approximately 60 percent of rural credit needs. The remaining 40% of rural credit needs are taken care of by non-institutional sources of credit, such as traditional moneylenders, shopkeepers and relatives. The general distinction between institutional and non-institutional sources of credit. Credit is formerly offering at low interest rates, but with little more paperwork than the latter, which offers credit at exorbitant interest rates, but credit is provided whenever necessary. Historically, the traditional money lending business is highly profitable in rural India, as many money lenders became rich in the money lending business.

To some extent, their profitability is due to low operating costs in terms of identifying individuals who are worthy of credit, procedures and formalities followed, accessibility, location in densely populated areas, individual assessment / pricing based on risk / behavioral assessment. However, due to the high exploitation of money lenders by levying higher interest rates, the government discouraged traditional money lending. Since independence, the Indian government has encouraged many institutions, starting with cooperative credit societies in the 1950s, followed by social control in 1968, then nationalizing banks in two stages once in 1969 and again in 1980. The establishment of regional rural banks in 1972 is also a step in this direction. Government simultaneously initiated many rural poverty alleviation / development schemes such as community development programs, service area approach, lead bank scheme, Integrated Rural Development Program (IRDP) and, more recently, Swarnajayanti Gram Swarozgar Yojana (SGSY) with a major component of credit with active bank participation. With all these efforts, the network of branches has dramatically increased through rural India, as there is now one bank branch in every six villages. The average population (in' 000s) per bank branch decreased significantly from 64 in 1969 to 15.2 in 2001.

### **The Linkage of SHGs with Banks**

The linkages of SHGs with banks aims at using the intermediation of SHGs between banks and the rural poor for cutting down the transaction costs for both banks and their rural clients. The objective of the linkage programme could be

- To evolve supplementary credit strategies for meeting the credit needs of the poor by combining the flexibility, sensitivity and responsiveness of the informal credit system with the strength of technical and administrative capabilities and financial resources of the formal financial institutions.
- To build mutual trust and confidence between bankers and the rural poor.
- To encourage banking activity, both on the thrift and credit sides, in a segment of the population that formal financial institutions usually find difficult to reach.

#### **There Could be Different Models of the Linkage between SHG and Banks**

- **MODEL 1** The simplest and most direct is a model in which the banks deal directly with the individual SHGs, providing financial assistance for on-lending to the individual members.
- **MODEL 2** Another model, a slight variant of the first, is where the bank gives direct assistance to the SHG and the SHG promoting institution (SHGI), usually an NGO, provides training and guidance to the SHG and generally keeps a watch to ensure its satisfactory functioning.
- **MODEL 3** The third model places the NGO or SHGI as a financial intermediary between the bank and a number of SHGs. The linkage between the bank and the SHGs in this case is indirect. The NGO accepts contractual responsibility for repayment to the bank.
- **MODEL 4** The fourth model envisages bank loans directly to individual members of SHGs upon recommendations of the SHG and NGO. In this case, the NGO assists the bank in monitoring, supervising and recovery of loans.

It is possible that the linkage may follow an evolutionary process and move from model three to model two and to model one and finally to model four where individuals get direct access to the bank. However, the adoption or acceptance of a particular model would depend on the perception of the bank and the strength of the SHGs and the NGO. Where the banker is able to have a firsthand information on the working of a SHG which is functioning satisfactorily and has rotated its pooled resources two/three times, he may well start with model two or even model one. However, a more conservative banker may like to start with model three and rely on the NGO or SHGI.

#### **The Financial Linkages with Principles**

The financial scheme under the Linkage Program could be based on the following broad principles

- First, savings, no credit without savings.
- Saving as partial collateral
- Bank loans to the group for loans to members
- Credit decisions for loans to members of the group
- Interest rates and other terms and conditions for loans to be decided by the group
- Joint liability as a substitute for physical collateral Ratio between savings and loan contingency on the group's credit worthiness
- Small loans to start with.

In addition to providing policy input, coordination and 100% refinancing facilities at low interest rates for banks, NABARD has organized exposure and dialog programs for banks and NGO officials in the linkage project. These exposure programs, which invariably include field visits, have helped to disseminate the concept and convince bank officials to participate in the project. To date, more than

50 such programs, covering around 450 officials, have been organized in collaboration with NGOs and renowned banker training institutes such as the College of Agricultural Banking (CAB) and the National Institute of Banking Management (NIBM).

### Summary

In most developing countries, rural credit policies were largely based on certain assumptions, some of which were commercial banks were reluctant to provide for rural poor credit needs for reasons that were neither commercial nor economic. Rural poor people had no capacity to save, they needed credit for concessional interest rates and relaxed terms. They needed credit for concessional interest rates and relaxed terms for taking up income - generating activities, especially for development work on their farms, rural people needed external assistance to organize themselves into groups, and then close monitoring and regulatory measures to ensure that they worked together. A larger mobilization of small savings would be equally advantageous. For the groups, advantages lie in the access to a larger quantum of resources as compared to their corpus generated through thrift, access to better technology and skill upgradation through different schemes of banking sector and a general improvement in the nature and scale of operations that would accelerate economic development.

### Useful Links

- [www.kiva.org](http://www.kiva.org)
- [www.finca.org](http://www.finca.org)
- [www.microinsuranceagency.com](http://www.microinsuranceagency.com)

### Model Questions

1. Discuss the importance and role of NABARD toward rural credit
2. Explain the structures of the Self-Help Groups (SHGs) in India.
3. Briefly explain the Gramin Bank Model
4. Discuss the features of Rural Insurance and also explain the agriculture-based insurance schemes.
5. Explain the significance of Micro Insurance and also comment how micro insurance differ from the other insurance.

#### To Do Activity

- Collect the NABARD Policies and Norms in relevant with Self Help Groups
- Compare the Interest rate for the different types of lending schemes.
- Compare the Premium charges on the different insurance policies which offered both Government Institutions and Private Institutions.
- Understand the SHG lending policies and regulations.

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Block 2

# RF 2 Management of Cooperatives

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## **Management of Cooperatives – An Introduction**

The Nations declared 2012 the year of cooperatives, emphasizing that there is an alternative to private companies. While greed and mismanagement have caused world financial and economic crises, cooperatives offer another type of business for economic activities that are less exposed to aggressive capitalism. This book provides a problem-oriented overview of the development of cooperatives in the last fifty years. The worldwide study addresses the major challenges facing cooperatives, such as the organizational innovations introduced to acquire the necessary risk capital and implement growth-related strategies, the wave of demutualization in developed nations and their ability to construct an original consumer policy. The contributors to this volume discuss the successes and failures of the cooperatives and ask whether they are an outdated business model. They document a wave of foundations for new cooperatives, new forms of collaboration between them and a growing trend towards globalization.

# Chapter 1 Introduction to Cooperation

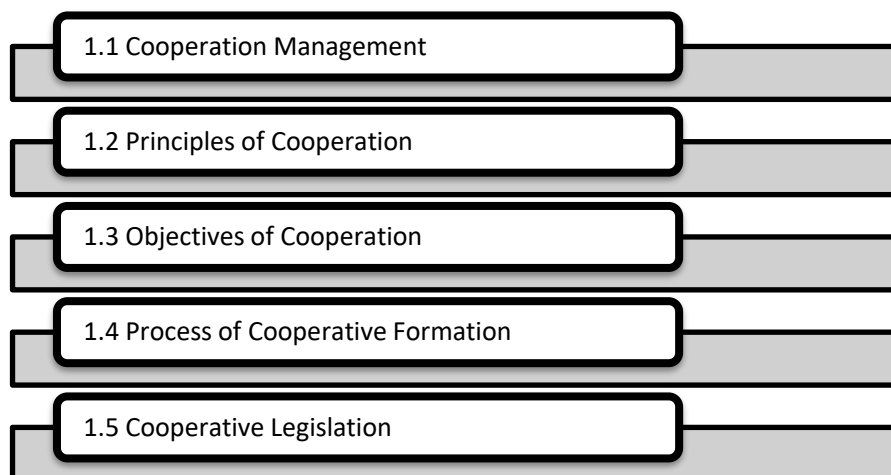
## Introduction

There are importance lies in the fact that they are run collectively and mutually, and because of this Cooperatives are much more resilient and people centered than a top down structure where those at the top make decisions based on their personal interest as opposed to the interests of all of those involved in the business or organization. If we examine the underpinning principles below that govern and guide the modern cooperative, we can see that these principles embody a great many of the things that we need to bring about a Permanent Culture, such as inclusivity, equality, fairness, access and participation to democratic processes.

## Objectives

- To enable the students to understand the principles of cooperation
- To enable the students to know the cooperative society formation procedure
- To enable the students to understand the cooperative legislation system in India

## Structure



Co-operation is derived from the Latin word “Co-operari”, ‘Co’ means “with” and ‘operari’ means “to work”. Hence co-operation means Working Together with others for a common purpose. Cooperation or Co-operation is the process of groups of organisms working or acting together for common, mutual, or some underlying benefit, as opposed to working in competition for selfish benefit.

In Economics sense, the cooperative stroke is a way to counter the exploitation of weaker sections by giving them a better economic position. Cooperation in the legal sense means special privileges and concessions granted to its members by law. It is a fact of history that the cooperative movement in its origins was intended as a shield for the weak and the poor against the evils of capitalism and competition. Hence it is true to say that it is an organization for the purpose of doing some business and intended for the material and economic welfare of its members. By satisfying their common economic needs by the cooperative.

According to the Socialist view Co-operation is a tool for the development of collective thought and the recognition of firms or households for business purpose and economic association through which economic activity is conducted in the pursuit of economic objectives". A significant result of the cooperative movement is that it teaches people to manage their own affairs. This is a high purpose in itself. It's a constructive function. It removes the competitive system. It tries to replace the motive of profit by the motive of service. It distributes the fruits of the members' joint efforts on the principles of equity and reason. Law defines as Co-operation implies special rights and concessions conferred by law on its members.

The universal scope of cooperation as a philosophy of life and a philosophy of action has been variously described. With the common man claiming greater attention and with the concept of Welfare State taking concrete shape in the evaluation of human density, cooperative presents a powerful appeal as a peaceful means of achieving revolutionary ends.

International Cooperative Alliance (ICA) Statement on the Cooperative Identity (1995) defines a Cooperative as an autonomous association of persons ed voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.

According to Calvert, "cooperation is a form of organization in which persons voluntarily associated together on the basis of equality for the promotion of their economic interests. Those who come together, have a common economic aim which they cannot achieve by individual and isolated acting because of weakness of the economic position of a large majority of them".

According to Emory Boardus, Cooperation is more than working together, it is faith, it is more than living together, and it interacts for a cause that is as inclusive as all humanity.

According to Darling Cooperation is a way of life, it is a philosophy of life; it is a set of behavioral processes and procedures, it is morality applied to business and it is a set of principles or fundamentals for guiding individuals and human society.

This element of individual's weakness is overcome by pooling up their resources, by making self-help effective through mutual aid and by strengthening the beyond of moral solidarity between them.

To be brief, the term "Co-operation" in its special sense, may be described as a special form of doing business, not in the traditional profit economy sense but to achieve their common objective through self-help and mutual help.

Co-operatives are different from for-profit companies owned by one or more investors whose intention is to make a profit by selling goods and services to other companies and individuals. Co-operatives are also distinct from non-profit organizations that provide education, charity and other services and must reinvest any profits they make in their own operations or donate them to other non-profits or government agencies.

Cooperatives are enterprises based on ethics, values and principles. Through self-help and empowerment, reinvestment in their commies and concern for the well-being of people and the world in which we live, cooperatives foster a long-term vision for sustainable economic growth,

social development and environmental responsibility.

According to the World Co-operative Monitor (2017), the Top 300 cooperatives and mutual report a total turnover of USD 2.1 trillion. Cooperatives contribute to sustainable economic growth and stable, high-quality jobs, employing 280 million people worldwide, or 10 percent of the world's employed population. In other words, more than 12 percent of humanity is part of one of the world's 3 million cooperatives.

The 2018 World Cooperative Monitor collected data for 2,575 organizations, the world's top 300 cooperative organizations operate in different sectors insurance (32%), agriculture (35%), wholesale and retail trade (19%), banking and financial services (8%), industry and utilities (2%), health, education and social care (2%) and other services (2%) and report a total turnover of over two trillion USD.

**Table 1.1 Measuring the Economic and Social Impact of Cooperatives**

Rank	Membership/ Population	Employment/ Population	Annual Gross Revenue/ GDP
1	France	New Zealand	New Zealand
2	Finland	Switzerland	Netherlands
3	Switzerland	Italy	France
4	Austria	France	Finland
5	Dominica	Malta	Luxembourg
6	Netherlands	Finland	Germany
7	Ireland	Germany	Ireland
8	Germany	Netherlands	Italy
9	Cyprus	Spain	Denmark
10	Australia	Norway	Poland

Source <https://www.un.org/esa/socdev/documents/2014/coopsegm/grace.pdf>

These ratios are the membership penetration of cooperatives relative to the total population (i.e., membership /population), employment by cooperatives relative to (i.e., employment/population) and annual gross revenue or turnover of all cooperatives in a country relative to the country's GDP.

### **Similarities between Cooperation and Socialism Principles**

Socialism is a system in which all means of production and distribution are owned and controlled by the state. It is a socio - economic system in which material means of production are owned by the public authority or the Community and operate not for profit, but for the services of the Community as a whole. Socialists are of different kinds and they are

1. Marxism socialism or scientific socialism
2. State socialism Guild socialism
3. and evolutionary and revolutionary socialism

In the words of Karl Marx, "Society can only be reformed by the destruction of private property." According to Lennin, "Mere growth of cooperation is identical to socialism."



- Aim of the both the principles is abolishing class struggle, profit economy and poverty in the midst of plenty, which oppose the standards of a welfare state, welfare of the Community and the promotion of social justice and progress.
- Bring economic equality and offer no opportunity for the development of glaring income and wealth inequalities.
- Aimed at the elimination of competitive forces and their substitution by the principles of cooperation.
- Both oppose individualism and seek to replace it by collective ownership and collective action.
- Both emphasized the distribution of wealth.
- Both the system is provide service rather than profit.
- Moral foundations and believe in human brotherhood
- Both systems have a common origin, and most importantly both the systems are making an attempt to eliminate the evil effects of competition.

### **Cooperative Thinkers and Leaders in the Indian Context**

Mahatma Gandhi imagined 'Gram Swaraj,' where social and economic changes would take place in the villages. His program for Gram Swaraj also included 'cooperation.' In an article written by the Mahatma, 'cooperative societies are ideally suited organizations not only for developing village industries, but also for promoting group efforts by villagers.'

Pandit Nehru clearly stated the importance of cooperative societies "I have no doubt theoretically in cooperation; cooperative work is good in every single department of human activity. It's a better way of life, and it's an inevitable way of life when you live in crowded communities.

Indira Gandhi-" I know of no other instrument as potentially powerful and full of social purpose as the cooperative movement.

"Thakur Pyarelal Singh (Father of Cooperation)-Thakur Pyarelal Singh's contribution to cooperation was excellent. Govt Chhattisgarh. Waman Rao Lakhe (RAI SAAB) of Raipur-Waman Rao Lakhe established Raipur Cooperative Central Bank in 1913, awarded every year for his excellent performance in the cooperative sector under the name of Thakur Pyarelal Singh. In cooperation, he made an extraordinary contribution.

### **Co-operative Values**

American International Development Agency (1985) explained that there are co-operative forms of social and economic organizations around the world, generated and molded by social, economic and political traditions that are often quite different. No single definition of "cooperative" would be adequate to describe the various activities labeled "cooperative," but certain common characteristics of cooperative organisations can be identified.

The values of self-help, self-responsibility, democracy, equality, equity and solidarity are the basis of cooperatives. Co-operatives believe in the ethical values of honesty, openness, social responsibility and the care of others in the tradition of their founding principles.

Formal declarations on co-operative principles, first in 1937 and second in 1966. These two earlier versions, like the reformulation of 1995, were attempts to explain the interpretation of cooperative principles in the current world. These episodic analyses in the principles give the cooperative movement strength. They illustrate how cooperative thought can be connected in a dynamic world, and also emphasize cooperatives can organize themselves to meet modern challenges, they include cooperators around the world within the re-examination of the fundamental reason for their Development.



**Figure 1.1 Cooperative Values**

'Self-help' is based on the belief that everyone can and should strive to control their own destiny. Cooperators believe that full individual development can only take place in association with others. Individuals also develop through cooperative action the skills they learn to facilitate the growth of their cooperative.

'Self-Responsibility' means that members take responsibility for their cooperative—for its establishment and its continued vitality. Members have a responsibility to promote their cooperative among their families, friends and acquaintances. Members shall also ensure that their cooperative remains independent.

Cooperatives are based on equality. Members, whether individuals or groups, are all equal. It does not depend on the social and economic status of the member

'Equity' within a cooperative is a continuous, never-ending challenge. It also refers to how members are treated in a cooperative. They should be treated fairly in how they are rewarded for their participation in a cooperative, usually through patronage dividends, allocation on their behalf to capital reserves or reduction in charges.

"Solidarity" ensures that cooperative action is not just a disguised form of limited self-interest. A cooperative is more than an association of members; it is also a collective. All members, including

employees and non-members who are closely associated with the cooperative, should be treated fairly.

Honesty, openness, social responsibility and care for others are values which may be found in all kinds of organizations, but they are particularly cogent and undeniable within cooperative enterprise.

### **Ethical and Morale Aspects of Cooperation**

MacLagan Committee, the theory of cooperation is very briefly that an isolated and powerless person, by association with others and by moral development and mutual support, can obtain in his degree the material advantage available to wealthy and powerful persons and thus develop himself to the fullest extent of his natural activities. It returns the value of money for honesty and other virtues. Honesty may be a policy in other organisations, but it is a necessity for cooperation, which undoubtedly exerts a strong influence in favor of the growth of these virtues.

According to Fauquet, the aim of cooperation is to make life sweeter and more fragrant in the field of mutual service. Cooperation means moral upliftment, honesty and homely virtues. Therefore, it is more than a system. It's a spirit and an attitude of heart and mind. Cooperation is a religion that applies to business. The very motto of cooperation ' everyone for everyone ' simplified loyalty, good fellowship and corporate feelings. The spirit of cooperation is such that it aims to fight to death what a great writer called ' the devilish doctrine of every man for himself '

### **1.2 Principles of Cooperation**

International Cooperative Alliance (ICA) has been the final authority for defining cooperatives and for elaborating the Principles upon which cooperatives should be based. The Alliance had previously made two formal statements on the principles of cooperation, the first in 1937 and the second in 1966. These two earlier versions, like the reformulation of 1995, were attempts to explain the interpretation of cooperative principles in the contemporary world. These periodic reviews in the principles give the cooperative movement strength. They demonstrate how cooperative thought can be applied in a changing world; they suggest how cooperatives can organize themselves to meet new challenges they involve cooperators around the world in the re-examination of the basic purpose for their Movement. The Principles of Cooperation are guidelines by which cooperatives put their values into practice.

The Cooperative Movement has changed constantly, and will continue to do so in the future. However, there is a fundamental respect for all people and a belief in their ability to improve economically and socially through mutual self-help.

Co-operative principles are those principles which are essential for the achievement of the co-operative objectives. In the words of George Davidonic, "They are Set of Rules which governs the life and activity of Co-operative Organization."

**There were different Stages in which the Principles Were Developed. The Important Stages Were**

#### **I. Roach Dale Principles as in the First Stage**

The first cooperative society was founded in 1760. This was created by Wool Wick and Chaton. Different cooperative societies were formed on different lines between 1760 and 1844, but they

did not succeed. In 1844, Twenty Eight Flannel Weavers in a place called Roach Dale in England formed a Consumer Co-operative Society for the benefit of the weavers ' Community. They succeeded in their undertaking basically because they run the store with some basic principles. This company works in England as a Wholesale Equitable Pioneers Co-operative Society.

The Cooperative Movement originated in Great Britain at the beginning of the 19th century. It was inspired by socio-economic reformers such as Robert Owen. Early cooperative attempts were not successful, however, because they often involved experiments in communal living-idealistic commies separated from society. Companies composed of independent owners-producers had the last

### **The Principles Given by Them for The First Time Include**

- a) Open membership -Membership of the cooperative society is open to all those who belong to the area who need their service.
- b) Democratic control -Management of the cooperative society is done democratically through democratic principles, and the elected body controls day-to-day affairs.
- c) Limited interest on share capital -interest on capital provided was limited.
- d) Patronage Dividend -Dividend distribution is fair. Because of the high contribution of capital, nobody gets special privilege.
- e) Cash Trading -They decided to sell goods only in cash, and no credit was allowed.
- f) Political and religious neutrality -They gave equal importance to all religions and politics.
- g) Promoting education -Education is important for its development, so that it extends cooperative education to all.
- h) Selling pure and unadulterated goods -Selling quality goods at affordable prices.

### **II. International Co-operative Alliance (ICA) Principle in the Second Stage.**

The International Co-operative Alliance is an international body established to promote cooperative ideas and to spread the principles of cooperation around the world. Due to enormous changes on the economic, social and political fronts, the International Co-operative Alliance (ICA) appointed a sub-committee in 1934 to take a fresh look at the co-operative principles. They evaluated the principles set out by Roach Dale, its relevance and observance at present, and finally submitted its report in 1937. Based on the subcommittee report of the ICA, instead of formulating principles, they simply classified the Roach Dale Principles into two-essential and non-essential-in 1937.

### **III. Karve Committee on Co-operative Principle as in the Third Stage**

Professor D.G. Karve from India was the Chairman of the Commission and is therefore popularly known as the Karve Commission on Co-operative Principles. In its 1966 report, the Commission recommended the following principles.

#### **1. Open and Voluntary Membership**

There is no discrimination on the grounds of caste, faith, religion, race, sex or politics. The only thing to remember when the member join is that your profession is not opposed to that of a cooperative society. For example, a money lender is not admitted as a member of the primary cooperative credit company.

#### **2. Democratic Management**

The main points to be addressed in democratic management are

- a) Each member has only one vote.

B) Majority rules in all matters.

c) The Management Committee should always have the authority of the members before they take any important step. According to the principle of democratic control, the Management Board is an elected body that controls day-to-day affairs.

**3. Limited Share Capital Interest.**

According to the Co-operative Societies Act of 1969, interest on capital is restricted. In order to collect the necessary amount of funds, the company is obliged to pay interest. No matter what interest is paid, it should be on a limited scale.

**4. Equitable Distribution of Surplus**

Equitable distribution of surplus income earnings is not the core objective of a cooperative society. However, this does not imply that cooperatives are not run on a profit-free basis, or are managed with losses.

**5. Cooperative Education**

The progress of society depends to a great extent on how best its members can take an active part in its affairs, which is only possible when the members are educated.

**6. Co-operation Among Co-operatives**

In order to best serve the interests of members, all co-operative organizations should actively cooperate in every practical way with other co-operatives at the local, national and international levels. Such cooperation is necessary to gain greater strength in order to face adverse conditions.

**IV. Co-operative Principles by ICA in 1995 as Final Stage.**

**Table 1.2 Cooperative Principles – Early and Revised**

<b>Defined Principles (1937)</b>	<b>Revised Principles - ICA Revision (1966)</b>
1. Open membership.	Open Voluntary Membership
2. Democratic control (one person, one vote).	Democratic Governance
3. Distribution of surplus in proportion to trade.	Limited Return on Equity
4. Payment of limited interest on capital.	Surplus belongs to members
5. Political and religious neutrality.	Education of members and public in Cooperative principles
6. Cash trading (no credit extended).	Cooperation between Cooperatives
7. Promotion of education	

Source ICA Co-operative Principles 1937, 1966, and 1995 revisions.

The statement of principles in 1995 was based on these fundamental philosophical points of view. There is no single taproot from which cooperatives of all sorts emerge. They exist in many different forms around the world, serving many different needs and thriving in different societies. The statement provides a common basis on which all the main traditions of cooperation can prosper and work effectively. Cooperatives around the world generally operate in accordance with the same core principles and values adopted by the International Cooperative Alliance in 1995. The International Cooperative Alliance is a global membership association of cooperatives and cooperative support

organisations. Cooperatives trace the roots of these principles to the first modern cooperative, founded in 1844 in Rochdale, England.



**Figure 1.2 Cooperative Principles**

**1. Voluntary and Open Membership**

Cooperatives are voluntary organizations that are open to all people who can use their services and who are willing to accept membership responsibilities without gender, social, racial, political or religious discrimination. According to the ICA Declaration on Co-operative Identity, “Co-operatives are voluntary organizations open to all persons who can use their services and who are willing to accept membership responsibilities without gender, social, racial, political or religious discrimination.”

**2. Democratic Member Control**

Cooperatives are democratic organizations controlled by their members, who are actively involved in their policies and decision-making. Men and women are responsible for the membership, serving as elected representatives. Members have equal voting rights [One member – One vote] in primary cooperatives and cooperatives at other levels are also democratically organized.

**3. Member Economic Participation**

Members contribute equitably to the capital of their cooperative and democratically control it. Members receive usually limited compensation for capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following ways, to develop their cooperative, possibly by setting up reserves, some of which would at least be indivisible, to benefit members in proportion to their cooperative transactions and to support other approved activities.

**4. Autonomy and Independence**

Cooperatives are autonomous, self-help organizations controlled by their members. They may enter into agreements with other organizations, including governments, or raise capital

from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.

#### **5. Education, Training and Information**

According to the ICA's Statement on the Co-operative Identity, "Co-operatives provide education and training for their members, elected representatives, managers and employees so they can contribute effectively to the development of their co-operatives. They inform the general public – particularly young people and opinion leaders – about the nature and benefits of co-operation." Cooperatives provide their members, elected representatives, managers and employees with education and training so that they can contribute effectively to the development of their cooperative.

#### **6. Cooperation among Cooperatives**

According to the ICA Declaration on Co-operative Identity, "co-operatives serve their members most effectively and strengthen the co-operative movement by working together through local, national, regional and international structures." Co-operatives work together through local, regional, national and international structures to serve their members more effectively and to strengthen the cooperative movement.

#### **7. Concern for Commies**

Co-operative principles focus on the needs of members, cooperatives work for the sustainable development of their commies through policies accepted by their members.

### **1.3 Objectives of Cooperation**

#### **Eradication of Intermediaries**

The primary objective of the co-operative society is to remove the intermediaries in different fields, who take away the gains that should have gone to the real recipients.

#### **Nurturing Economic Position of the Poor**

Aim of a co-operative society is to raise the standard of living of the poor.

#### **Elimination of the Ills of Capitalism**

The profit motive is the fundamental cause of the ills of capitalism. This results in exploitation, class struggle, inequality and unfair competition. These evils impacted workers' interests and gave birth to the cooperative movement. Cooperation is therefore aimed at reducing the amount of profit and providing better service to its members.

#### **Rising Ethical Values**

The cooperative movement wishes to direct human life towards goodness by raising its moral standard.

#### **Cumulative of the wealth of the whole Community**

A cooperative society aims to achieve the welfare of not a particular individual, but of the whole community.

#### **Elimination of Societal Inequalities**

The feeling of 'high' or 'low' among members of the community acts as a cause of social tensions, the removal of which is the aim of the cooperative movement.

## Benefits for Co-operation

The aspects of benefits of the cooperation is divided in to three broader segments, namely economy, Social, and ethical.

**Table 1.3 Benefits for Cooperation – Economy, Social and Ethical**

<b>Benefits for Cooperation – On the Basis of Economy</b>
<ul style="list-style-type: none"><li>• More equitable distribution of wealth.</li><li>• A breakdown of monopolistic tendencies.</li><li>• Increased purchasing power and real wages for individuals.</li><li>• Reduction of distribution system costs by eliminating unnecessary intermediaries.</li><li>• The more accurate correlation of demand and supply.</li><li>• Stabilization of employment.</li><li>• General improvement in employer relations, employee relations.</li><li>• Cheap marketing and processing of agricultural products at reasonable prices.</li></ul>
<b>Benefits for Cooperation – On the Basis of Social Factors</b>
<ul style="list-style-type: none"><li>• To provide a unique education in democracy, responsibility and tolerance.</li><li>• Evolve an industrial relationship between all.</li><li>• To preserve a strong friendly or family spirit and a sense of pride and power that is impersonal. Securing rational construction and unifying approaches to social and economic problems.</li><li>• Preventing underemployment and unemployment Securing moral and physical satisfaction with pure quality, correct weight and fair dealings.</li><li>• To prevent the exploitation of man by man.</li></ul>
<b>Benefits for Cooperation – On the Basis Ethical Factors</b>
<ul style="list-style-type: none"><li>• Honesty policy is a necessity in cooperation.</li><li>• Cooperation delivers value for money for honesty and other virtues.</li><li>• The motto of cooperation is “everyone for everyone and everyone for everyone “</li><li>• Co-operation aims at fine human production.</li></ul>

In India, cooperative societies were seen as ideal instruments to motivate people to come together and help themselves to eliminate the unscrupulous intermediaries who make huge profits at the expense of society. The Cooperative Credit Societies Act of 1904 enabled the formation of cooperatives to provide farmers with cheap credit and to protect them from exploitation.

Members willing to form a society must have a common bond between them. They may be residents of the same city, employees of some organization, members of a group with affinity, etc. The basic idea is that all people who want to form a society should have some common goals to achieve.

A cooperative planning committee was appointed to draw up the country's cooperative development plan. The committee which was chaired by R.G. Saraiya set an overall target of bringing 50 percent of the villages and 30 percent of the rural population within the scope of the movement over a period of ten years.

In order to equip the movement for its new role, it was necessary to formulate a long-term policy on



its structure and organization. In this context, the Rural Credit Survey Committee was appointed in 1951. The Committee proposed an integrated rural credit scheme based on

- a. 'State partnership at different levels.
- b. 'Full coordination between credit and other economic activities, especially marketing and processing;'
- c. and administration, through adequately trained and efficient personnel, responsive to the needs of the rural population. This scheme was approved and accepted as the basis for future development to be incorporated into the second five-year plan.

A notable change in policy occurred in 1958 when the National Development Council passed a 'drastic and sweeping' resolution, which in effect led to the rejection of the old, large-scale credit society and the emergence of small-scale 'Service Cooperatives.' Over the period of the three plans, the cooperative movement has made rapid progress.

Part IXB of the Constitution 97th Amendment Act, 2011, talks about "co-operative societies." According to Article 243ZH(c) of the Indian Constitution, "co-operative society "means a society registered or deemed to be registered under any law relating to co-operative societies for the time being in force in any State.

#### **1.4 Process of Cooperative Formation**

A Co-operative Society can be formed as per the provisions of the Cooperative Societies Act, 1912. At least ten persons having the capacity to enter into a contract with common economic objectives, like farming, weaving, consuming, etc. can form a Co-operative Society. A combined application along with the bye-laws of the society containing the details about the society and its members, has to be submitted to the Registrar of Co-operative Societies of the concerned state.

After examination of the application and the bye-laws, the registrar issues a Certificate of Registration.

The following steps must be followed while forming a cooperative society.

##### **Step 1 Minimum Members Required**

In order to form a society, the law requires that at least 15 members demonstrate their intention to be part of a society with the same aim and objective to be achieved through society for their mutual benefit and thus to be part of it.

##### **Step 2 Chief Promoter Choice Provisional Committee**

Once a group of individuals has a desire to form a society, the next step must be a provisional committee of which everyone is a member and all of them must, by mutual consent or by a majority, choose a person who will be the chief promoter of the society to be formed by them.

##### **Step 3 A Name for the Society has to be Selected**

Thereafter once a chief promoter is selected by set of individuals among them, they have to select a name for the co-operative society which they wish to form

##### **Step 4 Application has to be Made to the Registration Authority**

Once the name of the society is selected by the members then they have to make an application to

the registration authority stating that they have an intention to form a society and the name of the society has to be given to the authority for its approval and registering authority has to confirm that name is in conformity with laws and issue a confirmation certificate to the members. Then when the members get their name approval from the authority it is valid for 3 months from the date of approval.

#### **Step 5 Entrance Fees and Share Capital**

Thereafter once name approval comes from the concerned authority, the entrance fee and the share capital must be collected from the concerned prospective members to meet the statutory requirements under law and it can be prescribed by the members themselves or society act mandates certain fees to be paid by them.

#### **Step 6 Bank Account**

Thereafter once the prescribed fee and share capital is collect from the prospective members, then as per the directions of the registering authority promoter has to open a bank account in the name of the society and deposit the said fees and share capital in that account and a certificate has to be obtained from the bank to that effect

#### **Step 7 Registration Application**

Once the formalities of the bank have been completed, the promoter must apply to the registration authority for the formation of the company and must be accompanied by a set of documents, they are Form No. A quadruplicate signed by 90% of the promoter members

1. List of members of the promoter
2. Banking Certificate
3. Detailed explanation of society's work.
4. Four copies of proposed bye-laws of the society.
5. Proof of payment of registration charges.
6. Other documents such as affidavits, indemnity bonds, any documents specified by the Registrar also have to be submitted

#### **Step 8 Registration**

The Registrar must acknowledge that after submitting the documents referred to in step 7, the Registrar of that municipal ward must enter the details in the book known as the "Register of Application, "which is generally specified in form B, and give the application a serial number. The registrar must then issue a receipt to that effect and give it to prospective members to know the status of the application when it is pending.

**Table 1.4 Important Committees relevant with Cooperative Movements in India**

- All-India Rural Credit Survey Committee Report (1954)
- Chaudhary Brahm Prakash Committee (1990)
- Mirdha Committee (1996)
- Jagdish Kapoor Committee (2000)
- VikhePatil Committee (2001)
- V. S. Vyas Committee (2001 and 2004)
- Maclagan committee on Cooperation (1915),
- Royal Commission on Agriculture (1928),
- Gadgil Committee (1944),
- Cooperative Planning Committee (1951),
- Central Committee on Cooperatives (1953),
- Committee on Cooperative law (1956),
- Committee on Cooperation (1965),
- Santhanam Committee (1969),
- National Commission on Agriculture (1971, 1976),
- Special Study Group (1971),
- RG Sariya Committee (1972),
- working group on cooperation for the Fifth Five year plan (1973),
- Hazari Committee (1975),
- CRAFTCARD (1981), Committee on Cooperative law (1985),
- Committee on Democratization and Professionalization of Cooperative Management (1987),
- Agricultural Credit Review Committee (1989),
- Expert Committee on Model Cooperative Act (2000),
- Expert Committee on Rural Credit (2000),
- Committee on Revitalization Support to Cooperative Credit Structure (2002),
- Advisory Committee on Flow of Credit to Agriculture and other related activities from the Banking System (2004),
- Task Force on the Revival of Cooperative Credit Institutions (2004) and High Powered Committee on Cooperatives (2005)

### 1.5 Cooperative Legislation

The term cooperative societies came into being when the farmers of Poona and Ahmednagar led an agitation against the money lenders who charged exorbitant interest rates. Thus, the British government introduced and passed three acts the Deccan Agriculture Relief Act (1879), the Land Improvement Loan Act (1883) and the Agriculturists Loan Act (1884). But Cooperative move came with structure and shape when British enactment of the Cooperative Credit Societies Act, 1904. In 1919, cooperation became a provincial subject and the provinces were authorized to make their own cooperative laws under the Montague-Chelmsford Reforms. This categorization carried on to Government of India Act, 1935. In 1942, Government of British India enacted the Multi- Cooperative Societies Act to cover Cooperative Societies with membership from more than one province. This categorization carried on to Government of India Act, 1935. In 1942, Government of British India enacted the Multi- Cooperative Societies Act to cover Cooperative Societies with membership from more than one province.

The ultimate objective of the National Policy is (a) Support for the promotion and development of cooperatives (b) Reduction of regional imbalances (c) Strengthening of cooperative education, training and development of human resources.

After independence co-operatives became an integral part of the five-year plans. In 1958, the National Development Council (NDC) recommended a national co-operative policy as well as staff training and the establishment of co-operative marketing societies. In 2002, the Government of India announced a National Cooperation Policy.

A cooperative society, which has its object the promotion of the economic interests of its members in accordance with the co-operative principles may be registered with limited or unlimited liability by filing application accompanied by copy of its byelaws and signed by at least 10 adult members of the same locality, class, caste, tribe or occupation (Sec.4 to 9).

The controlling provisions include Registrar's power of holding inquiry into the constitution, working and financial conditions of the society, inspection of books of indebted society, dissolution of the defunct society, cancellation of registration of society whose membership falls below 10, and winding up of the society through liquidator (Sec. 35, 36, 39, 40 and 42). The legislation is in force even today in Union Territories and is invoked by the Central Government.

- Co-operative Societies Act under which the same is registered, whether under the State Act or the Central Act.
- Co-operative Societies rules made there under central or state rules
- Bye-laws approved by the registrar at the time of registration and amendments made from time to time and approved by the registrar, these by-laws must be formed by the members themselves concerned and present it to the registration authority for its approval.
- Notification and Orders by the concerned Government.

Co-operative Societies Acts functional in different states like

- Maharashtra Co-operative Societies Act, 1960,
- Pondicherry Co-operative Societies Act, 1972,
- Karnataka Co-operative Societies Act, 1959,
- Delhi Co-operative Societies Act, 1972,
- Kerala Co-operative Societies Act etc.

When the area of operation is restricted to one state, the State Co-operative Act & Rules, under which the society is registered will be applicable. In a particular state, if Co-operative Act and Rules is not enacted, the Central Act which is known as The Co-operative Act, 1912 and its rules will be applicable. When the area of operation of Society is spread in two or more states. The Multi-State Co-operative Societies Act, 2002 and its rules shall be applicable.

### **Provision for Indian Constitution**

1. Directive Principles of State Policy lays down that-Living wage, etc. for workers in accordance with Article 43. The State shall endeavor to secure, by appropriate legislation or economic organization or in any other way, for all workers, agricultural, industrial or otherwise, work, living wages, working conditions ensuring a decent standard of living and full enjoyment of leisure and social and cultural activities.

2. Right to Form Cooperatives can also be construed as a Fundamental Right, Article 14– (Right to Equality) and Article 19(1) (c) as ‘Right to form Associations or Unions’.
3. The 97th constitutional amendment, 2011, was the latest legislative endeavors with regard to cooperatives. It stipulates that citizens have the right under Article 19(1) to form cooperative societies, which means that formation cooperative societies have become a fundamental right. A new Article 43(B) has been incorporated into the Constitution providing that the State shall endeavor to promote voluntary training, autonomous functioning, democratic control and professional management of cooperatives.

### **Act and Rules Applicability for the Cooperatives**

Cooperative Act of 1904 was largely based on the English Friendly Societies Act. It was known for its elasticity and simplicity. It was a simple and small enactment containing 29 sections, suitable for a large group of illiterate, ignorant and sophisticated rural populations. The Act outlined the general fundamental principles above of cooperative societies and left state government’s sufficient latitude to lay down appropriate rules adapted to the conditions prevailing in their states and for the control and development of the cooperative movement in their states.

### **Salient Features of the Act of 1904**

- The 10 people living in the same area could form a cooperative society to encourage Thrift and self-help among the members.
- A company's main objective would be to raise funds from members' deposits, as well as loans from non-members, government and other cooperative societies and to distribute these funds as loans to members or, with the Registrar's permission, to other cooperative credit societies.
- The cooperative credit societies in each province were to be controlled and administered by the Registrar of Cooperative Societies. The accounts of the companies were to be audited by the Registrar of Cooperative Societies.
- The accounts of the companies were to be audited by the Registrar of Cooperative Societies. Four fifths of the members of rural societies were farmers and non-agricultural urban societies.
- Rural societies were to be organized on the basis of unlimited liability, while in the case of urban societies the liability of the members could be either limited or unlimited. In the case of rural societies, dividends were not to be paid to the members and the surplus funds were to be deposited in the Reserve Fund. If this fund goes beyond the limits set by the Act, a bonus may be distributed to the members.
- In the case of urban societies, no dividend would be paid to the members until one fourth of the profits were deposited in the reserve fund in one year. Further Loans could only be advanced to the members. Members could only purchase shares up to the limit laid down in the Act. The credit societies were to be exempted from fees and taxes.

### **Cooperative Societies Act 1912**

The Co-operative Societies Act of 1912 expanded the sphere of cooperation between its members and provided for supervision by the central organization. A cooperative society which aims to promote the economic interests of its members in accordance with the principles of cooperation may be registered with limited or unlimited liability. In other words, a group of ten people can form

a cooperative society, in India, such societies operate under the Co-operative Societies Act of 1912 and other State Cooperative Societies Acts. The co-operative society's main objectives are to provide service rather than profit, to provide mutual assistance rather than competition.

### **Salient Features of the Act of 1912**

The main features of the Act of 1912 are as follows

- Any society aimed at promoting the economic interests of members could be established.
- The liability of central societies was to be limited, while that of the member of rural credit societies was to be unlimited.
- One fourth of the annual profits were transferred to the Reserve Fund, 10 percent of the balance could be spent for charitable purposes.
- Local governments were allowed to use their discretion in the formulation of rules and bylaws of societies.
- The term cooperative could not be used as part of the title or any business enterprise registered under the Act unless it was already doing business under that name before the beginning of the Act.
- Shares and co-operative interests were exempt from attachment. –Cooperative societies have been given priority with regard to the recovery of certain duties

The Cooperative Societies Act 1932 was enacted to implement the suggestions of the Townsend Committee and to incorporate the results of the movement's experience. The Act strengthened the Registrar's hands in dealing with unsatisfactory societies, speedy collection of corporate arrears and better reorganization of cooperative societies.

### **The Outstanding Features of the Act of 1932**

- Provision for the division and amalgamation of cooperatives, registration of other types of societies, prohibition of members from exercising their rights until due payment is made by them, provision for a general body giving importance to the democratic functioning of cooperatives, government aid to registered societies were introduced in this Act.
- The Registrar's overall control powers have been enhanced under this Act. Inspection and investigation provisions, inspection of books by the financing bank, supplementary provisions, execution of decrees, decisions, awards and orders, supersession of the Cooperative Board
- Under offences and penalties, punishment for furnishing false information, punishment for contravention of the provisions of the cooperative Act and punishment for other minor offenses were also introduced.
- The Act contained 66 sections as against 49 in 1912 and 29 in 1904. Increase in provision simultaneously vested the powers in the hands of the Registrar besides the general body.

### **Multi Cooperative Societies Act-Act No. VI of 1942**

This Act provides for the incorporation, regulation and winding-up of cooperative companies operating in other provinces. On 2 March 1942, the act of the Indian Legislature received the assent of the Governor General.

- It provided for incorporation, regulation and winding up of cooperatives with objects not confined to one State, but registration is possible in any State;

- It provided for incorporation of societies prior to and after the commencement of this Act;
- It provided that area of operation and not the nature of business of a society is given consideration for deciding the fact of a particular, i.e., a cooperative society;
- The newly opened branch of a society on other State is required under the law (of the State of registration or location) to submit to Registrar of the State its Bylaws within six months and shall be under the full control, administration and supervision of the State Registrar.

### **Multi- State Cooperative Society Act 2002**

Multi-State Cooperative Society has been defined under section 3(p) of MSCS Act 2002. It says that “multi-State co-operative society” means a society registered or deemed to be registered under this Act and includes a national co-operative society and a Federal co-operative.” The Act provides for the formation of both the types of cooperative societies viz primary (with both individual and institutional members) and Federal Cooperatives (with only institutional membership). The main objectives of the society are to work in the interest and welfare of its members in more than one state. It is not necessary that a society should have branches in more than one state, it may have branches limited to one state and it shall not cease to be a multi-state co-operative society, so long as it serves the interest of members in more than one state.

### **Features of a Multi- State Cooperative Society**

#### **1. Appointment of Central Registrar**

The Act provides for the appointment by the Central Government of the Central Registrar to exercise various powers under the Act. The central government can also empower any official of the state government to exercise specific powers of the central registrar in respect of the multi-state cooperative society with its registered office in that state. In the case of national cooperative societies / federations, such powers shall only be exercised by the Central Registrar.

#### **2. Definition of Cooperative Principles**

For the first time in the history of cooperative legislation, co-operative principles have been precisely defined in the Act. Furthermore, the Act specifically men

#### **3. Deletion of Powers of Obligatory Amendment of Bye-laws, Amendment or Division**

Under the provisions of this Act, the by-laws of a multi-state cooperative society may be amended or the company may be amalgamated with other multi-state cooperative societies or divided into more than one company if the company itself voluntarily opts for such amendments / amalgamations / division.

#### **4. Conversion of the Cooperative Society to a Multi-State Cooperative Society**

The Act provides for the conversion of a cooperative society into a Multi-State Cooperative Society. The proposal for amendment of bye-laws extending the area of operation beyond the frontiers of one state has to be approved by the Central Registrar, who has to consult the Registrars of the States concerned before registering the amendment.

#### **5. Persons who become Members of Multi-State Cooperative Societies**

Section 19 of the Act contains relevant provisions in this respect. While the provisions are in accordance with the usual provisions of state cooperative laws.

#### **6. The Tenure of the Elected Member of the Board of Directors**

Sub-section 3 of Section 35 of the Act states that the tenure of the elected member of the Board of Directors Multi-State Cooperative Society shall be such, not exceeding 3 years, as

may be laid down in the bye-laws of the society.

#### **7. Office Holding in a Cooperative Society**

Section 36 of the Act provides that no person shall be eligible to hold at the same time the office of Chairman or Vice-Chairman or Vice-Chairman on the Board of more than one Multi-State Cooperative Society. Furthermore, Section 37 of the Act stipulates that no person shall be eligible to hold the office of President, Chairman, Vice-Chairman, Vice-Chairman of a Multi-State Cooperative Society after having held the office for two consecutive terms, whether full or partial. These provisions are designed to curb the growth of vested interests in cooperatives.

#### **8. Removal of the Elected Member by the General BodySection-39 of the Act**

Empowers the General Body of a Multi-State Cooperative Society to remove from the Board of Directors an elected member who has acted adversely in the interests of society. A resolution in this name must, however, be adopted by a majority of not less than two-thirds of the members present and voting at the general body meeting.

### **Objectives of Multi-State Cooperative Society**

Anybody to be registered as Multi-state cooperative societies should have the following objects

- (1) No multi-state cooperative society shall be registered under this Act, unless
  - (a) Its main objects are to serve the interests of members in more than one state
  - (b) The bye-laws of the Society should provide for social and economic betterment of its members through self-help and mutual aid in accordance with the cooperative principles.

The foreign bureaucrats drafted co-operative laws in colonial Asian countries. As in the case of the ed Kingdom, Germany and other European countries, cooperatives and cooperators were not involved. Thus, the main consideration in the framing of cooperative laws was "What is 'good' as considered by the rulers and not by the members or the people."

Modern cooperative laws in the region are mainly the product of a period in which cooperatives are widely supported by governments and used for government-planned development programmes. Since the introduction of the market economy and the globalization of trade, government support for cooperatives has been steadily declining. There are, however, no perceptible changes in cooperative laws and government-cooperative relations. Governments continue to exercise their control over cooperatives, including interference in day-to-day cooperative affairs in many countries.

In most Asian countries, the first half of the 20th century colonial governments tried to control local cooperative leadership and people. No faith was placed in state-friendly leadership, and the growth of cooperatives remained rather slow in government. Cooperatives were replaced by farmers ' associations in Japan and South Korea during the Second World War, and agricultural cooperatives were established here too.

### **Special Features of the Model Cooperative Act, India**

- State policy on cooperatives and the Principles of Cooperation have been stated in the beginning of the Act as guide to the remaining provisions of the Model Act and to facilitate the government to conform to the basic ideology of cooperation.



- Procedure for Registration of a new cooperative is simplified and all artificial restrictions by way of area of operation, economic viability etc., are removed.
- The Model Act gives no rule making power to the government. The law itself lays down the broad parameters necessary to be observed by cooperative and leaves all other matters relating to constitution management and business of the society to be conducted in accordance with its bye-laws;
- The Model Act gives no power to the Registrar or the Government to issue orders for any of the following in a cooperative
  - Supersession of the Board of Directors
  - Compulsory amalgamation or division of societies
  - Compulsory amendment of the bye-laws
  - Veto/rescind/annul the resolution
  - Issue directives
- Cooperative Federations / Unions shall assume greater responsibility towards the member cooperatives and, in particular, ensure the regular conduct of the Management Board elections and the timely conduct of the annual audit of the accounts.
- The role of the Registrar under the Model Act has been confined to the registration and liquidation of cooperatives, the conduct of inquiries and the conduct of elections, the audit and the convening of the General Body in the event of a default.
- The Model Act prohibits cooperatives from accepting government funds by equity.
- In order to ensure the character of the cooperative as a member user organization, special obligations have been imposed on members.
- The Board of Directors has been held accountable for the timely conduct of elections, the regular convening of meetings of the Managing Committee and the General Body, and for the participation therein and for the timely conduct of the audit of the accounts.
- Model Act prohibits officers of the Government to work in a cooperative.
- The Model Act provides for the Constitution of Cooperative Tribunal for settlement of disputes including appeals on matters relating to constitution, management and business of a cooperative and to take cognizance of any offence under the Act.

### Summary

The cooperative movement in our country will not only remain, but will also grow in times to come. Despite this, the disadvantages experienced in the work and administration of co-operative societies positive contributions to the growth and development of the national economy. Promoting prudence, Self-help and mutual aid are the fundamental principles of cooperation. The Guidelines Commercial organizations and cooperative organizations are essentially different. In a business Organization, profit-maximization and profit-making is the only motive; Organizational profit cannot be the sole motive. The main objectives, in addition to the three the co-operation fundamentals mentioned above are to make the goods and services available required quantity, better quality and reasonable price for its members. It doesn't mean that a Co-operative Society is a charitable organization. It should therefore conduct itself in a business like this How to achieve its objectives efficiently.

### Model Questions

1. Discuss the role ICAs towards the cooperative's development.

2. Explain the concept of cooperation under the view of Social, Economic and Ethical.
3. Explain the process of cooperative formation.
4. Discuss the role of cooperative legislation in the aspects pre and post-independence regime.
5. Discuss the modern cooperative principles.

**To Do Activity**

- Collect the information about cooperatives formation through the any one cooperative society
- Take ten cooperative societies – vision and mission statement.
- Examine the Cooperative Principles applications in the Capitalist and Socialist Countries.

# Chapter 2 Introduction to Cooperatives

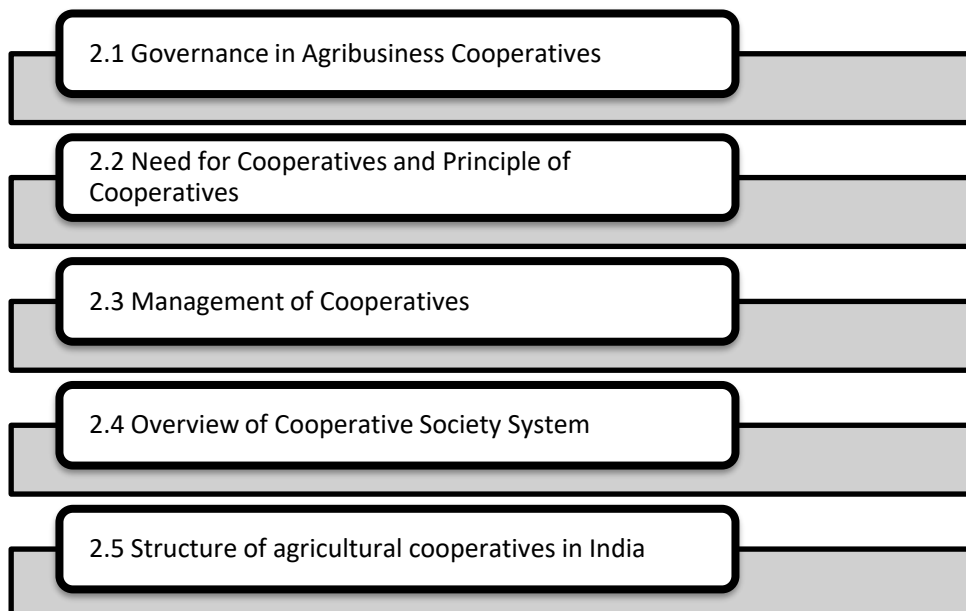
## Introduction

The cooperatives have a strong foundation for their ethical values and principles, which are characteristic of good governance. The principles of corporate governance are not alien to cooperatives, but are inherent in them. Corporate governance in vogue is a modern concept of management, while co - operative governance is their "Articles of Faith" for doyens and co - operators. Unlike today's corporate governance, cooperative governance is not a remedy to cure the disease.

## Objectives

- To learn the Cooperative Society Governance & system of the Cooperative
- To make them aware of the importance of Cooperative Society
- To overview of Agri-Business Cooperatives

### Structure of the Chapter



## 2.1 Governance in Agribusiness Cooperatives

### Governance Meaning

Governance is about exercising authority within a framework defined and protected by law, with the aim of providing common public goods and services. In this context, the institutions involved in multilateral development assistance approach the concept of governance. The Asian Development Bank (ADB) defines governance as the way in which power is exercised in the management of the economic and social resources of a country for development. Governance is the exercise of political, economic and administrative authority in the management of a country's affairs.

The governance structure is reflected in the rules and institutions that create the framework for conducting both public and private business and regulatory frameworks.

The concept of governance can be applied at different levels

- International level

- National level
- Government
- Private sector
- Civil society
- Local level

### **Principles of Good Governance**

The ed Nations regards good governance as having eight major principles

#### **1. Participation**

The principle of participation is derived from an acceptance that people are at the heart of development. They are not only the ultimate beneficiaries of development, but are also the agents of development.

#### **2. Consensus-Orientation**

Good governance requires mediation of the different interests of society in order to reach a broad consensus on what is in the best interest of the whole Community and how this can be achieved. It also requires a broad, long-term perspective on what is needed for sustainable human development and how to achieve the goals of such development. This can only result from an understanding of the historical,

#### **3. Accountability**

Accountability is a key requirement for good governance. Not only government institutions, but also the private sector and civil society organizations must be accountable to the public and their institutional stakeholders.

#### **4. Transparency**

Transparency means that decisions are taken and enforced in a way that follows rules and regulations. It also means that information is freely available and directly accessible to those affected by such decisions and their enforcement.

#### **5. Responsiveness**

Good governance requires institutions and processes to serve all stakeholders within a reasonable timeframe.

#### **6. Equity and Inclusiveness**

The well - being of a society depends on ensuring that all its members feel that they are involved and do not feel excluded from the mainstream of society. This requires that all groups, but especially the most vulnerable, have opportunities to improve or maintain their well - being.

#### **7. Effectiveness and Efficiency**

Good governance means that processes and institutions produce results that meet the needs of society while making the best use of resources available to them. The concept of efficiency in the context of good governance also covers the sustainable use of natural resources and environmental protection.

#### **8. Consistency with the Rule of Law**

The rule of law includes well-defined rights and duties, as well as mechanisms for their enforcement and the impartial settlement of disputes. It requires the state and its subsidiary agencies to be as closely bound and accountable to the legal system as private individuals and companies.

### **Governance in Agribusiness**

Agricultural governance is concerned with increasing the growth and development of the agricultural sector of a country and managing the consequences of this process through the effective functioning of its institutions, the application of technology and scientific innovations, the implementation of policies, compliance with laws and regulations and the active participation of all stakeholders involved.

### **Global Governance of Agriculture**

This consists of a complex web of international public, private and civil institutions aimed at fostering cooperation, pooling resources, resolving conflicts and, more generally, seeking consensus and collective action in a world of interdependent actors. It also includes a wide range of treaties, conventions, protocols, codes and standards governing access

### **The Key Components of the Global Agricultural Governance System are as Follows**

#### **World Trade Organization (WTO)**

**Agreement on Agriculture (AoA)** The aim is to promote efficiency by reducing subsidies and improving quality. For developing countries, however, there are exemption provisions and certain support for agriculture, especially for the purposes of stabilization and food security.

**Agreement on Sanitary and Phytosanitary Measures (SPS)** This deals with food safety and animal and plant health regulations.

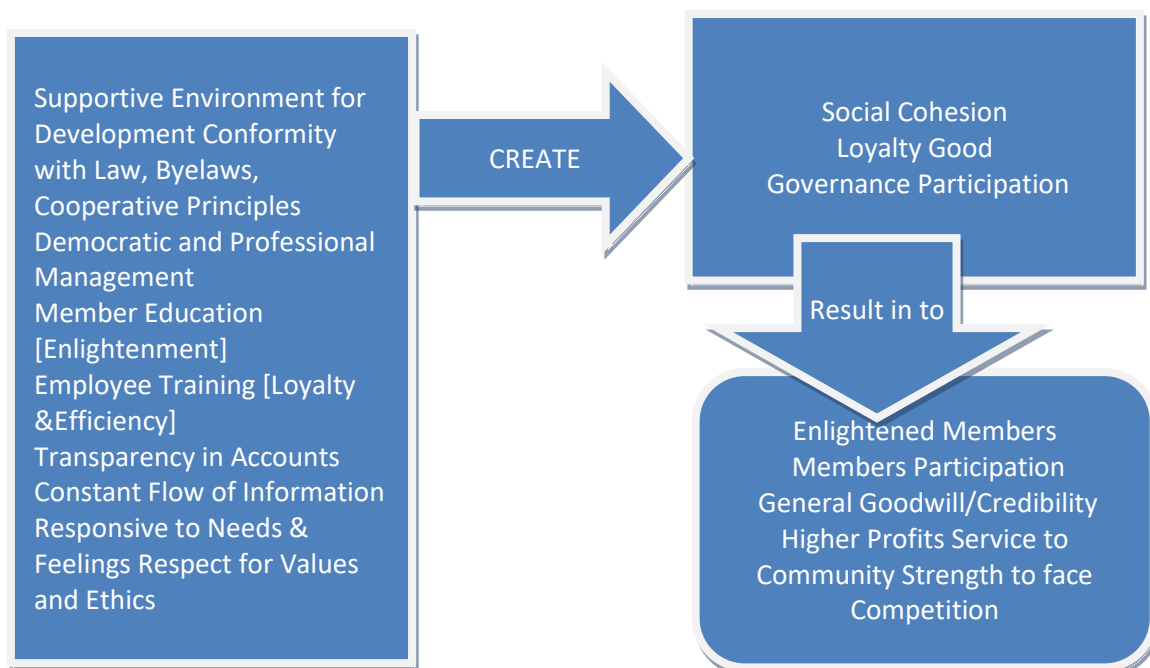
**Trade Related Intellectual Property Rights (TRIPS)** Article 27(3)(b) of this Agreement requires members to protect plant varieties either by patents or by an effective sui generis protection system, or by a combination of both.

#### **The United Nations (UN) System**

The following UN organizations assist developing countries in implementing targeted agricultural development programs and projects in the broader context of poverty alleviation development activities, achieving MDGs, environmental protection and sustainable development, and trade and investment.

- United Nations Development Program (UNDP)
- United Nations Environment Program (UNEP)
- United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)
- United Nations Conference on Trade and Development (UNCTAD).

Nearly 70 percent of the Indian population depends on agriculture and is therefore linked to agricultural cooperatives. Other sectors, e.g. credit, fertilizer production and distribution, processing, transport, agricultural extension, are also closely linked to agricultural cooperatives. The cooperative sector in India is intertwined with the other two sectors, public and private.



**Figure 2.1 Components of an Enlightened Cooperative Institution**

**Components of An Enlightened Cooperative Institution**

Source Model adopted from ICA

**Table 2.1 Governance System in India**

System Distinction	Large / MNCs	Small Business	Cooperative
<b>Group 1</b>	<b>Ownership</b> (Owners/Investors/Shareholders)	<b>Ownership</b> (Owners/Investors/Shareholders) <b>Control</b> (Decision Makers/Top Management)	<b>Ownership</b> (Owners/Investors/Shareholders) <b>Control</b> (Decision Makers/Top Management) <b>Use</b> (Customer)
<b>Group 2</b>	<b>Control</b> (Decision Makers/Top Management)	<b>Use</b> (Customer)	
<b>Group 3</b>	<b>Use</b> (Customer)		

## 2.2 Need for Cooperatives and Principle of Cooperatives

### Common Essence for Cooperatives

Cooperatives as a form of economic enterprise involve getting things done between free human beings with

- (i) Equal rights
- (ii) Equal human prestige (and mutual respect for each other);
- (iii) Equal locus standi (eg, legal standing) so that everyone's welfare is considered.

This is called "coordinated cooperation" and is needed for equilibrium and equipoise in social life. A socio-economic system should be based on coordinated cooperation not subordinated cooperation.

"Subordinated cooperation" involves people doing something individually or collectively, but at the same time keeping themselves under other peoples' supervision or control. This can degenerate the moral fabric of an enterprise and should be avoided when structuring cooperative business enterprises.

In the Broader Sense, the Cooperative needs can be highlighted by the following ways

- The members should be prepared to work in a spirit of cooperation.
- Equality should be achieved in all respects
- No exploitation should take place.
- There should be no political influence.
- There should be no regimentation.
- There must be no loss of initiative.
- Capital should not be allowed to prevail.
- Both producers and consumers should feel satisfied
- **Ownership and Democratic Control**  
Cooperatives enable farmers to democratically own and control businesses to procure their supplies and services (inputs) and to market their products (outputs). They volunteer to help themselves rather than rely on the government. They can determine objectives, financing, operating policies and methods for sharing benefits.
- **Increased Farm Income**  
Cooperatives increase farm incomes in a number of ways. These include (1) raising the general price level for products marketed or lowering the level of supplies purchased; (2) reducing the cost of handling or processing per by assembling large volumes, i.e. economies of size or scale; (3) distributing to farmers any net savings in handling, processing and selling operations; (4) improving the quality of supplies or agricultural products handled (5) developing new products markets. Farmers usually judge the benefit of belonging to a cooperative by its net margins or savings, a tangible measure. More specifically, they look at the amount they are currently paying in cash. Next is the amount allocated to them in non-cash forms, which may be revolved later. Many cooperatives make substantial cash payments annually from earlier deferred refunds from revolving funds.
- **Improved Service**  
The co-operatives' basic objective is to serve the needs of their members. They do this by providing services that are not available or by improving existing services. Rural electric cooperatives and artificial insemination associations are excellent examples of making a new service available in rural areas. Production Credit Associations were pioneers in creating loans based on carefully planned budgets.

- **Quality of Supplies and Products**  
 Farm supply cooperatives have been noted for providing supplies that give the farmer the greatest value in use. Their goals were to provide feed, seed and fertilizer that gave the farmer maximum gains or yields rather than those that returned the largest net margins to the cooperatives.
- **Assured Supply Sources**  
 Cooperatives provide members with a reliable source of reasonably priced supplies, especially during shortages or emergencies. This service may require cooperatives to forego larger net margins from other domestic or foreign businesses to meet the needs of their member owners.
- **Enhanced Competition**  
 Strong successful cooperatives introduce desirable competition that increases current market prices for agricultural products, the type of services provided and the quality of supplies purchased by farmers. Individual farmers have little bargaining or purchasing power, but by joining cooperatives, they can acquire "muscle on the market." Farmers in many areas are forced to deal with fewer product buyers or supply sellers. In some industries, only a few large companies control a substantial market share at various integrated levels in the marketing process.
- **Expanded Markets**  
 Many marketing cooperatives can better meet the needs of large-scale buyers than individual farmers by pooling products of a specified grade or quality. A number of cooperatives have developed markets in other countries, and their exports offer outlets for more production than could sell.
- **Improved Farm Management**  
 Progressive managers and field staff of cooperatives provide members with valuable information on farm production and management practices. Advice may be offered on the quality of seeds, fertilizers and pesticides and on feeding and cultivation practices. Many cooperatives also provide market and economic information about various products or companies.
- **Legislative support**  
 Another financial benefit, not easily measured, is that legislative support cooperatives provide for their members. This is supplied by large centralized cooperatives, local federations, state cooperative councils and national cooperative organizations.
- **Local Leadership Development**  
 Increasing cooperatives often develop leaders among directors, managers and other employees. And members become more self-reliant and informed citizens in their communities by participating in business decisions on a democratic basis. The practical business experience gained as directors or committee members is often supplemented by specialized formal training.
- **Stronger rural communities**  
 A local cooperative usually has several hundred members who frequently use its services. This in turn helps to bring employers to other types of business in the Community. In small towns, the cooperative is often the biggest or only business. Without it, people would have to go for goods and services elsewhere.



- **Improved general welfare**

Additional income farmers receive through ownership in cooperatives is distributed among thousands of farmers in commies across the country. Cooperatives help to reduce members' supply and service costs by distributing most of their net savings over operating costs back to member employers on a patronage basis. Cooperatives also employ thousands of employees

## **Principles of Cooperatives**

**Principles** The Co-operative principles are guidelines by which Co-operatives put their values into practice.

**1st Principle Voluntary and open membership** Co-operatives are voluntary organisations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political, or religious discrimination.

**2nd Principle Democratic member control** Co-operatives are democratic organisations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary co-operatives members have equal voting rights (one member, one vote), and co-operatives at other levels are also organised in a democratic manner.

**3rd Principle Member economic participation** Members contribute equitably to, and democratically control, the capital of their co-operative. At least part of that capital is usually the common property of the co-operative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing their co-operative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the co-operative; and supporting other activities approved by the membership.

**4th Principle Autonomy and independence** Co-operatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their co-operative autonomy.

**5th Principle Education, training and information** Co-operatives provide education and training for their members, elected representatives, managers, and employees so they can contribute effectively to the development of their co-operatives. They inform the general public - particularly young people and opinion leaders - about the nature and benefits of cooperation.

**6th Principle Co-operation among co-operatives** Co-operatives serve their members most effectively and strengthen the co-operative movement by working together through local, national, regional, and international structures.

**7th Principle Concern for Community** Co-operatives work for the sustainable development of their commies through policies approved by their members.

## 2.2 Management of Cooperatives

### Uniqueness of Cooperative Principles

1. Cooperation is based on the principle of self-help through mutual assistance, abolition of profits and self-service.
2. In cooperation, individual freedom occupies a very important position.
3. The principles of 'voluntary association' and 'democratic management' are the guidelines for the cooperative movement.
4. Cooperation eliminates the employers and provides independence to the workers.
5. A cooperative society is a union of weak and needy people who have equal rights and have one vote, regardless of the number of shares held by them.

### Cooperative Societies - Practice the Code of Conduct

- Comply with the provisions of the Cooperative Act and the rules and other applicable laws.
- Adhere to the cooperative values framed by the International Co-operative Alliance.
- Consider the needs and interests of the members during the preparation of legal proceedings.
- Do not indulge in any financial malpractice.
- Maintain all accounts books in a transparent manner.
- Pay tax in time. Invest the funds wisely with maximum returns.
- Follow human resource development strategies, fair wages and ethics among employees.
- Organize in-house and outdoor training, training and development programs for employees.
- Update their technology and introduce modern technology.
- Participate in research, innovation and creativity techniques.

Management combines ideas, processes, materials, facilities and people to effectively provide the necessary services to members. Management is the cooperative's decision-making element. Broadly speaking, its role involves formulating and implementing operational policies, providing good service, maintaining financial soundness and implementing operational efficiencies to meet its objectives successfully.

The management of a cooperative is challenging and difficult. It involves not only managing resources and business operations like other companies, but also dealing with problems stemming from the distinctive characteristics of the cooperative. Because the members of the cooperative are both owners and employers, special relationships and problems arise concerning the role of the member and the board of directors and responsibility.

In reality, the management of a cooperative is different from other types of business as 'decision-making techniques are identical, but the objectives of the cooperative are different; therefore, the conclusions of the manager will be different'

Cooperative principles and objectives have a distinctly different management premise. This premise is further revealed through the following perspectives that an executive must acquire to be a good cooperative manager.

## Democratic System in Cooperatives

The Co-operative Acts provide the basis for this authority by law, but the co-op's bylaws may also provide that specific policy decisions, such as wage rates, may require the approval of the members meetings. Importantly, the co-op's bylaws, which regulate the life of the co-operative, must be approved by the members and can only be changed by a meeting of the members. Cooperative societies can operate democratically, but you can't stop at the middle of the working day to discuss every decision that needs to be made. The directors are responsible for ensuring that an effective operational structure is in place, supported by the members. This can take many forms, depending on the wishes of the members and the type of company the cooperative society operates.

Good collective decisions require well-researched information and good communication between the board of directors, the manager and the membership. Based on the membership structure, co - operatives can be classified as centralized, federated or mixed. A local cooperative is a centralized cooperative— individual producers are members. A centralized region may serve members in a large geographical area and have one central office, one board of directors and one manager (Chief Executive Officer) who oversees the entire operation. Business can be conducted through several branches.

A federated cooperative is a cooperative. The members of a federated cooperative are local cooperatives, each operated by a manager responsible for a board of directors. Each local association in a federated cooperative is a separate business entity that owns a share of the membership entitling it to vote in regional affairs. In a cooperative institution there are three basic and critical components. These are members; the Board of Directors / Management Committee; and the Operating Manager / Functional Management. According to the bye laws voluntarily adopted by the members of their general assembly, the rights and duties for each of them have been outlined. These are generally as follows

**Table 2.2 Management Powers and Responsibilities**

<b>Powers</b>	<b>Responsibilities</b>
<ul style="list-style-type: none"> <li>• Membership Matters, and Share Management</li> <li>• Financial reports</li> <li>• Suggestion of changes in byelaws</li> <li>• Corporate seal -Borrow money</li> <li>• Supply, marketing credit and another services management</li> <li>• Recruitment, dismissals</li> </ul>	<ul style="list-style-type: none"> <li>• Providing necessary capital</li> <li>• Controlling the cooperative</li> <li>• Patronizing the cooperative</li> <li>• Assuming Business risks</li> <li>• Paying operating costs</li> <li>• Keeping informed</li> <li>• Maintaining the cooperative</li> </ul>

**Members Powers and Responsibilities**

<b>Powers</b>	<b>Responsibilities</b>
<ul style="list-style-type: none"> <li>• Governance [Elections &amp; Selections]</li> <li>• Decision-making</li> <li>• Dissolve or Merge Cooperative</li> </ul>	<ul style="list-style-type: none"> <li>• Providing necessary capital</li> <li>• Controlling the cooperative</li> <li>• Patronizing the cooperative</li> <li>• Assuming Business risks</li> <li>• Paying operating costs</li> <li>• Keeping informed</li> <li>• Maintaining the cooperative</li> </ul>

### **Responsibilities Towards Customers**

- Supply goods to customers at fair and reasonable prices.
- Avoid artificial shortages of goods and services.
- Avoid exploiting consumers through malpractices such as adulteration, etc.
- Honor and protect consumers ' rights.
- Conduct marketing research activities to make business consumers friendly.

### **Responsibility Towards Members**

- The face value of the share is kept low, as the cooperative is designed for the poor and the weak. Society activities should promote the interest of members.
- Supply goods of quality at low rates through cooperative stores.
- Provide fair returns for the capital provided.
- Provide an oppority to maintain savings by accepting deposits.
- Provide complete and fair information on the financial position of the cooperative.
- Help in the education of children from the Reserve Fund Attend their social and economic affairs and help in the cost of marriages, death in the family, etc.

### **Responsibility Towards Employees**

- Pay fair wages and workers ' allowances.
- Practice impartial policies for promotion and transfer.
- Provide job security to increase your moral and sense of loyalty.
- Provide workers with welfare facilities.
- Introduce appropriate grievance handling machinery.
- Appreciate and encourage special skills and abilities.

### **Responsibility Towards Competitors**

- Pay different taxes, duties, charges etc. regularly and honestly.
- Compliance with and compliance with relevant commercial, industrial and other laws.
- Follow the practices of fair trade.
- Repayment of loans taken from public sector banks and financial institutions by terms and conditions.
- Do not buy political favors and favors from government officials.
- Submit information and documents to government authorities on a timely basis.

### **Responsibility Towards Public**

- Contribute to economic growth and national security.
- Generate job opportunities.
- Ensure better life and welfare for all members of society.
- Ensure environmental protection and ecological balance.
- Introducing social audit by professional experts.
- Provide financial support for social and cultural activities.
- Rehabilitate the population affected by business operations.
- Setup educational institutions, social services institutions, hospitals etc.

## 2.4 Overview of Cooperative Society System

### Cooperative Society Joint Stock Company

#### 1. Definition

It is an association of persons who have come together on a voluntary basis to promote their economic interest. It is an artificial person, recognized by law with a common seal, carrying a limited liability and having a perpetual succession.

#### 2. Basic objective

To provide basic service to its members. Profit earning is a secondary motive.

To earn profit out of the business

#### 3. Registration

Done under Co-op Societies Act 1912

Done under Indian Companies Act 1956

#### 4. Members

At least 11 members are necessary but no limitation on maximum members For a Pvt. Ltd. Company minimum 2 members are required and for a Pub. Ltd. Company minimum 7 members are required.

#### 5. Voting Rights

Based on the principle of 'One Man One Vote'

Based on principle of 'One Share One Vote'

#### 6. Liability

Members either have limited or unlimited liability

Liability of shareholders to the face value of shares.

#### 7. Transfer of Shares

Shares are non-transferable

Shares are freely transferable in the market

#### 8. Financial Resources

They are limited because they don't have the capacity to raise and borrow funds.

They are unlimited, since the capacity to borrow and raise funds is very high.

#### 9. Privileges

Enjoy exemption in income tax and stamp duty

Never get any exemption if income tax

#### 10. Closure

Can be dissolved under order of court Can be liquidated by legal process, i.e. by the consent of the state.

#### 11. Audit

Accounts are audited by Registrar of co-ops

Accounts are audited by statutory auditor

### Cooperative Society Under Partnership Firm

#### 1. Definition

It is an association of persons who have come together on a voluntary basis to promote their economic interest.

When two or more persons come together to undertake certain activities to earn profit.

#### 2. Basic Objective

To provide basic service to its members. Profit earning is a secondary motive.

To earn profit out of the business

### **3. Registration**

It is compulsory and done under Co-op Societies Act 1912

It is optional and done under Partnership Act.

### **4. Members**

At least 10 members are necessary but no limitation on maximum members At least 2 persons are required and maximum number is 10 for banking business and 20 for non-banking business.

### **5. Liability**

Members either have limited or unlimited liability

### **6. Closure**

Can be dissolved under order of court Can be liquidated any time with consent of partners.

### **7. Audit**

Accounts are audited by Registrar of co-ops

Accounts can be audited by any CA

### **8. Legal Status**

It has separate legal entity.

It has no separate legal entity.

There is no distinction between partners and their firm

### **9. Surplus**

Not more than 12% of the net profit can be distributed as bonus.

Surplus is shared by the Partners in agreed Ratios.

## **Power of Registrar of the Co-operative Society**

- Deciding policies as per the financial policies of state and central governments.
- Registration of co-operative societies
- Consent for amendment of byelaws submitted by co-ops at the time of registration.
- Permission for investment of society's Reserve Fund in any business or lending loans.
- Audit and inspection of society,
- Stoppage of business of society, if he found that the work of society is against the welfare of its members.
- Imposing penalty on defaulter members of executive committee.
- Assisting in recovery of loans provided by Land Development Bank
- Decisions for the disputes of members regarding elections and other matters.

## **Functions of Chairman of the Cooperative**

- Chair committee meetings.
- In the case of equality of votes, use casting to resolve dead locks.
- Give the secretary a written notice to hold a special committee meeting.
- Direct and supervise acts of officers and servants Check the accounts of the secretary or trustee and examine the register and account books to take steps to recover dues to society.

## **Registration of the Cooperative Society**

According to Sec. 4 says that a society with the object of promotion of economic interest and general welfare of its members and public may be registered under the Act.

### **Conditions for Registration**

1. Society should consist of minimum 10 members.
2. Members should belong to different family and not from the one family.
3. Members should be eligible to contract as per Indian Contract Act 1872.
4. All persons forming the society must reside in the area of the operation of society.

### **Refusal of Registration**

Registrar may refuse to register the society under the following circumstances

1. Society does not comply with the conditions laid down in the Act.
2. Society fails to furnish the required information.
3. When the name of the society is similar to any registered society.
4. If Registrar feels that the society will adversely affect the development of co-operative movement.

### **Cancellation of Registration**

Registrar may cancel the registration of a society under the following circumstances

1. It transfers the whole of its assets and liabilities to another society.
2. It amalgamates with another society.
3. Its affairs are wound up
4. It is de-registered
5. Winding up proceedings are terminated on its liquidation.

### **Members of Cooperative Society**

There are four types of membership in the society

1. Original Member A person who is admitted to the membership of the society.
2. Associate Member A member who holds jointly a share in the society with others. He gets the right of vote only in the absence of person whose name is first in the share certificate.
3. Nominal Member Sec. 2(19) of the Act states that "A person may be admitted after the registration of the society as a nominal member on payment of nominal fee, in accordance with the by-laws of the society".
  - a. He does not have any right and privilege of member.
  - b. He has no right to vote
  - c. He is not eligible to be a member of committee.
  - d. He cannot be appointed as the representative of the society.
  - e. He will not be entitled to any shares in the profits or assets of the society.
4. Sympathizer Member Sec. 2(19) of the Act states that "A person may be admitted as a member who sympathizes with the aims and objectives of the society".

### **Rights of Members**

1. Right to hold shares, not exceeding one fifth of share capital of society or Rs. 20,000.
2. Right to transfer his shares to an outsider who applies for membership.
3. Right to receive dividend at the rate not exceeding 12% in case of profits.
4. Right to vote in General Body Meeting personally and not by proxy.
5. Right to inspect the books and records of the society free of costs.
6. Right to contest elections of any post of any committee.
7. Right to raise loan from the society.

8. Right to refer any dispute to the co-operative court.
9. Right to resign from membership of the society.
10. Right to receive refunds 6 months after his resignation.

#### **Duties and Liabilities of Members**

1. To pay the dues of society regularly.
2. To comply with the provisions of the Act and Bye-laws of the society
3. Not to create nuisance in the society.
4. Not have any interest that conflicts with the objectives of society.

#### **Cessation of Membership**

A person shall cease to be a member under following circumstances

1. His resignation from membership being accepted.
2. He transferred all of his shares or interest to another member.
3. He removed or expelled from the society.
4. He has died.
5. Any member corporate body, firm or trust dissolved.

#### **Managing Committee**

Members of Managing Committee are appointed as per byelaws of the society and comprises of Chairman, Vice Chairman, President, Vice President, MD, Secretary and Treasurer. Powers of Managing Committee

1. Manage the business of the society.
2. Scrutinize the membership applications.
3. Check the books of accounts and register of the secretary and treasurer.
4. Sanction working expenses and any emergency expenses.
5. Appoint, suspend, and remove all officers except auditors.
6. Deposit the funds of society to any bank
7. Enter into any contract of the society
8. Borrow, raise or secure the payment of money
9. Refuse transfer of share if transferee is not qualified to be a member.
10. Settle or contest any suit or claim by or against the society in a court of law.

#### **Duties of Managing Committee**

1. To observe the provision of the act, rules and bye-laws
2. To get the account of society audited and placed before the General Body Meeting.
3. To hold elections of the committee before expiry of terms.
4. To maintain particulars of assets and liabilities of the society.
5. To maintain prescribed books of accounts

#### **Functions of BOD**

1. Elect chairman of society from amongst its members
2. Register new members and allot of shares to them
3. Authorize transfer of shares
4. Allow investment of funds
5. Lay down policies, guidelines, and procedures as per act, rules and byelaws

#### **Duties of Secretary**

1. To prepare and enforce office rules and procedures
2. To maintain record book of business transactions and annual budget of the society.



3. To execute the decisions of managing committee as regards borrowings & investment of surplus funds.
4. To fix date of AGM and Managing Committee Meetings in consultation of chairman.
5. To issue notice, agenda etc. for meetings.
6. To maintain register of members, share ledger, capital register minutes book.
7. To file statements of accounts with the registrar.
8. To issue circulars, notifications and booklets to the members.
9. To receive loan applications from members and placed before managing committee.
10. To keep contact with the press and to inform about publicity of activities of society.

## **2.5 Structure of Agricultural Cooperatives in India**

A co-operative society is an autonomous organization of persons, associated voluntarily to accomplish their basic needs and aspirations through a jointly owned and democratically controlled organization. The co-operative societies are active in almost all the countries worldwide and are present in all the sectors including agriculture, food, finance, health care, marketing, insurance & credit. Agriculture continues to be the engine of economic growth in most developing countries. These co-operative societies help farmers to overcome many of their difficulties. The cooperative societies work on several principles, one of which is to work for the community's sustainable development.

The Indian Farmers Fertilizer Co-operative Limited (IFFCO) is a unique undertaking in which farmers in the country, through their own cooperative societies, have created this new institution to protect their interests in the production and distribution of fertilizers. Registered in 1967, IFFCO is a multi-Co-operative Society and has made strategic investments in several joint ventures across India and the world with the sole aim of benefiting farmers in India.

In India, there are a number of successful co-operatives such as Indian Farmers Fertiliser Cooperative Limited (IFFCO) and KrishakBharati Cooperative Limited (KRIBHCO) in the fertilizer sector and some Self-Help Groups (SHG) formed by various institutions which have immensely benefited the farmer members in enhancing their overall income by supporting them in different ways.

Suitable Farming Systems (SFS) produces year-round employment and sustainable income through crops, fruits, vegetables and livestock. Some co-operatives like Indian Farm Forestry Development Co-operative Ltd (IFFDC) have taken an initiative to go in for agro forestry combining the plantation of various trees such as fruit trees, forest trees and fuel trees so that the overall climate can be improved on the wastelands. This has helped ecological resilience and enhancement of rural livelihood among the farmer community which has immensely benefitted in increasing efficiency of various agriculture inputs and crop productivity and thereby making good profit.

### **Agriculture Business can be divided into three broad categories and they are as follows**

- Productive Resources like feed, seed, fertilizer, equipment, energy, machinery etc.
- Agricultural Commodities like raw and processed commodities of food and fiber.
- Facilitative Services like credit, insurance, marketing, storage, processing, transportation, packing etc.

The Agricultural credit market in India is characterized of Organized (Institutional) Agricultural

Credit; and Unorganized (Non-Institutional) Agricultural Credit. The organized credit market comprises of Cooperatives; Commercial Banks; Regional Rural Banks and Non-Bank Financial Intermediaries. The non-institutional credit market comprises landlords, agricultural money lenders, and professional money lenders etc. who usually charge unreasonable rates of interest. The entire cooperative network in India has two major segments of Rural Cooperative Credit Institutions and Urban Cooperative Banks. The rural cooperative credit institutions have been organised into short-term and long-term structures. Cooperatives came into existence in the form of Cooperative Societies to provide Institutional credit by raising funds through loan, membership and deposits. The same principle of cooperation for supply of credit was subsequently extended to other facilities like marketing, processing, storage etc. based on which different types of cooperatives have been established. The basic objective of these societies has been the supply of credit but these have assumed the broad status of rendering several services related to input supply, marketing, processing, etc. The agricultural credit societies were converted into large-sized and multipurpose societies and even special purpose cooperatives. The cooperatives have frequently been classified based on several criteria like nature of activities of members i.e. consumers; providing credit; sales; purchase; agriculture; industrial etc. No doubt, a perfect classification is practically difficult but at least the agricultural cooperatives have quite satisfactorily been classified based on the function and purpose of each class of cooperatives.

In the mid-sixties, the cooperative sector in India was responsible for distributing 70 percent of the fertilizers consumed in the country. This sector had adequate infrastructure to distribute fertilizers, but had no production facilities of its own and therefore dependent on the public / private supply sectors. In order to overcome this lacuna and to bridge the demand gap in the country, a new cooperative society was designed specifically to meet the needs of farmers. It was a unique undertaking in which the farmers of the country, through their own cooperative societies, created this new institution to protect their interests. The National Agricultural Cooperative Marketing Federation of India Ltd (NAFED), established in 1958, was established with the aim of promoting the cooperative marketing of agricultural products to the benefit of farmers. It undertakes the purchase, sale and supply of agricultural products, marketing and processing requirements such as manure, seeds, fertilizer, agricultural equipment and machinery, packaging machinery, construction requirements, processing machinery for agricultural commodities, forest products, dairy, wool and other animal products.

NAFED helps farmers to procure their products such as food grains, pulses, olive seeds, spices, cotton, tribal products, jute & jute products, eggs, fresh fruits & vegetables through its co-operative network across the country with the active involvement of marketing societies at Mandi level. It also provides marketing assistance to farmers by arranging the disposal of their products on a consignment basis.

### **Functioning of Cooperatives in Agriculture**

- Short-term Structure
  - Supply of credit for seasonal requirements
- Primary Agricultural Credit Societies (PACS)
  - Crop loans for routine agricultural operations
  - Supply of farm requirements such as seeds, fertilizers, pesticides, etc.

- Provide household requirements
- Multi-purpose Societies
  - Credit for all multi-purpose activities in rural development
  - Aims at “better farming, better business, better living”
  - Support in marketing and processing of agricultural products
- Large-sized PACS
  - Same as PACS except for size of operation and linkage of credit and marketing
- Farmers’ Service Societies
  - Integrated credit and other services to small and marginal farmers, tenants and landless farm laborer’s
  - Credit for development activities like development of land, wells, godowns etc. for collective use.
- Marketing Co-operatives
  - To market members’ produce
  - Provide credit on security of produce
  - Provide grading, processing and pooling of agricultural produce
- Processing Co-operatives
  - Integration of agricultural production and processing to enhance rural employment and livelihood
  - Establishment of commodity-based processing s as Spinning Mills, Sugar Mills, Oil Mills, etc.
- Long-term Structure
  - Supply of credit for long-term investment for improvement of land, purchase of costly farm agricultural equipment, sinking of wells and pumps etc.

### **Progress of Consumer Co-operatives in Connection with Agribusiness**

In November 1960, the then National Co-operative Development and Warehousing Board set up the Committee on Consumers Co-operatives to examine the promotional and organizational aspects of the consumer’s movement, for ensuring sound and speedy development thereof. In October 1962, emergency was declared in the country in the wake of Chinese aggression, and it was considered necessary for the consumers to organize co-operative stores and hold the price line. In almost all states, State federations of consumer’s stores were also organized and the National Consumers’ Co-operative Federation (NCCP) was organized at national level. It was observed that consumer’s co-operatives “can effectively serve as an instrument of consumer protection in the sphere of retail distribution” and “have a vital role to play in the task of stabilization prices”.

Under Indian conditions, where prices tend to rise at the slightest pretext, one of the objectives of co-operative stores is to hold the price line. To achieve this objective, the co- operatives, have been advised to follow the “active price policy”. In many western countries like Sweden, Denmark, Russia and Japan, consumer co-operatives have set up their own manufacturing s and have shown that by producing about 15 to 20 per cent of total produce of a commodity, they can exercise wholesome influence on the market prices as well as quality. In India also, a few consumer co-operatives have set up oil mills, spice powdering plants, flour mills, coffee roasting and grinding plants. The policy of the Government of India is to encourage consumer co-operatives to install their own manufacturing s in the field of spice powdering, dal milling, and coffee grinding, soap making, tailoring and

polythene bags etc. For this purpose, the consumer co-operatives are eligible to financial assistance up to 80% of the Chapter capital expenditure from the Government of India or the NCDC depending upon the nature of the industry to be set up. They are also entitled to a managerial subsidy for three years on a tapering scale. It is felt that the consumer co-operatives by setting up their own s will be able to help in the supply of quality goods at fair prices, without depending too much on the manufacturing s. This will also give them some countervailing power in bargaining with the manufacturers in respect of supplies.

### Summary

Co-operatives are a living proof that cooperation can work. They are such a brilliant vehicle to achieve and model this core feature of life. Its brilliance lies in the fact that it is founded on the fundamental phenomenon of everyone and everything is inseparably connected. That we're all in this together. And cooperation is how we can make it work. Individualism (in contrast to individuality and autonomy) is a social cancer. Like growth for the sake of growth, greed and all forms of adult self-centeredness. They all tend towards disconnection and away from the common good. Giving approval disconnects us from the recipient and the whole. In general, the entire design of the cooperative movement was a top-to-bottom approach with rigid conditions, which offered very little scope for articulation at the local Community level. Nevertheless, farmers were forced to become members of these cooperatives, as most of the financial support from various development schemes was linked to the cooperatives.

### Useful links

- <https://www.iffco.in/>
- <https://www.coop.ch/en/about-us/company.htm>
- <https://archive.india.gov.in/sectors/rural/index.php?id=6>

### Model Questions

1. What are the principles of the Cooperatives?
2. Examine the management of cooperatives and also state the need of cooperative
3. Critically examine the agribusiness cooperative system governance in India.
4. Briefly explain about the cooperative system in India.
5. Discuss the challenges and opportunities in agribusiness in India.

#### To Do Activity

- Collect the information modern agribusiness
- Prepare the SWOT matrix of Agribusiness in India.
- Collect the information agricultural allied activities

# Chapter 3 Types of Cooperatives

## Introduction

The aim of forming cooperative credit societies is to provide loans to members at reasonable interest rates and to develop the habit of thriving among members. They accept deposits from members and provide loans to members at reasonable interest rates. The formalities are much simpler compared to the use of a bank loan. The cooperative credit societies are of two types.

Agricultural credit societies and non-agricultural credit societies. Agricultural credit societies are formed in villages and provide loans to farmers and rural craftsmen. Non-agricultural credit societies are formed in urban areas and provide loans to people living in urban or semi-urban areas.

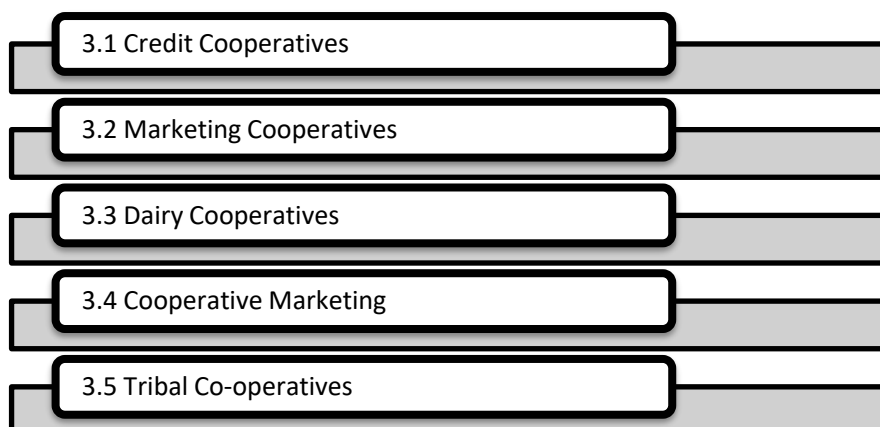
Cooperatives first emerged as distinct legal institutions in Europe in the nineteenth century. In the difficult years of the 1840s, Cooperatives achieved their first permanent successes in five distinct traditions

1. The Consumer Cooperatives, whose beginnings have long been popularly associated with the Rochdale Pioneers
2. The Workers' Cooperatives, which had their earliest strength in France
3. The Credit Cooperatives, which largely began in Germany
4. The Agricultural Cooperatives, which had their early roots in Denmark and Germany.
5. Service co - operatives, such as housing and health co - operatives, which came to an end in many parts of industrial Europe. Not only did they have their share of success in their respective countries, but they also found their way into the rest of the world in the 20th century.

## Objectives

- To understand the credit cooperatives system in India
- To know the importance of agricultural marketing
- To understand the Production, processing, dairy and tribal cooperatives significance

## Structure



### 3.1 Credit Cooperatives

The word “credit” comes from the Latin word “Credo” which means “I believe”. Hence credit is based up on belief, confidence, trust and faith. Credit is otherwise called as loan. Definition Credit / loan is certain amount of money provided for certain purpose on certain conditions with some interest, which can be repaid sooner (or) later.

According to Professor Galbraith credit is the “temporary transfer of asset from one who has to other who has not” Credit needs in Agriculture Agricultural credit is one of the most crucial inputs in all agricultural development programmes. For a long time, the major source of agricultural credit was private moneylenders. But this source of credit was inadequate, highly expensive and exploitative. To curtail this, a multi-agency approach consisting of cooperatives, commercial banks and regional rural banks credit has been adopted to provide cheaper, timely and adequate credit to farmers. The financial requirements of the Indian farmers are for,

1. Buying agricultural inputs like seeds, fertilizers, plant protection chemicals, feed and fodder for cattle etc.
2. Supporting their families in those years when the crops have not been good.
3. Buying additional land, to make improvements on the existing land, to clear old debt and purchase costly agricultural machinery.
4. Increasing the farm efficiency as against limiting resources i.e. hiring of irrigation water lifting devices, labor and machinery

Credit Cooperatives have been in existence in India for a long time. A lack of supply of rural credit was prevalent in India. To meet the demand for short-and long-term rural credit, the Co-operative Credit Structure (CCS) was established. While short-term credit is provided by State Cooperative Banks (SCBs), District Central Cooperative Banks (DCCBs) and Primary Agricultural Credit Societies (PACSs), long term credit is supplied by the Primary Cooperative Agriculture and Rural Development Banks (PCARDB).

Rural Credit Cooperatives were initiated in India long ago, some of them even before India's independence in 1947. The rural credit cooperative system was further developed after independence. Moreover, rural banks have been set up. Despite such initiatives, however, the credit needs of rural Indians have not been effectively met. The supply of credit for agriculture has not matched the demand level.

According to World Bank estimates the average 65 percent of rural credit in India was used for productive purposes, the remaining 35 percent was used for consumption. Of the 65 percent utilization for productive purposes, short-term utilization was 49 percent. Long-term use (purchase of agricultural machinery, livestock), etc., accounted for just 16 percent. Short-term consumption (for the purchase of consumer durables, clothes, etc.) was 20 percent while long-term consumption (for house building, marriage, etc.) was 15 percent.

The Co-operative Credit Structure (CCS) of India was set up to serve the needs of both short term and long term rural credit in India. Short term credit is supplied in rural India by three institutions

- State Cooperative Banks (SCB)
- District Central Cooperative Banks (DCCB)
- Primary Agricultural Credit Societies (PACS)

- Long term credit is supplied by the Primary Cooperative Agriculture and Rural Development Banks (PCARDB)

In 2007, the World Bank approved a project related to rural credit cooperatives in India. This project, entitled "The Strengthening Rural Credit Cooperatives Project," has an estimated total cost of US\$ 600 million and is expected to be completed by June 2012. The project will be implemented by the National Bank for Agriculture and Rural Development (NABARD).

### **PACS features**

1. It can start with ten or more people from the village.
2. The value of share is nominal so as to poorest farmer can become a member.
3. The liability of member is unlimited i.e. he is fully responsible for the loss of society.
4. The management consists of president, secretary and treasurer.
5. The management is honorary; the only paid member is accountant.
6. Profits are not distributed but it is used for the welfare of village.

### **Rural Credit Survey Report - 1954**

The RBI appointed a committee under the chairmanship of A.D. Gorwala to assess the source of rural finance and suggest some crucial measures.

### **Findings of Committee**

- Large part co-operative credit societies went to the big farmers only.
- There was a big communication gap in villages.
- People are illiterate and did not know the importance of co-operative credit.
- Only 3.1% was provided by societies and remaining 97% was provided by private money lenders.
- There were no facilities of training the personnel of co-operatives.

### **Recommendations of Committee**

#### **State Partnership**

Only financial help is not sufficient; state should enter into partnership for effective rural development.

#### **Long Term Operation Fund**

RBI should constitute a special fund of Rs. 10 crores for giving the state government for direct participation in co-operatives.

#### **Linking of Credit Societies with Marketing Societies**

Primary Credit Societies should finance the member on condition that he should sell his products to the marketing societies.

#### **Large Size Societies**

Large size credit societies should be established which would be viable and easily serve a cluster of village effectively.

### **Training Facilities**

Sufficient training facilities should be provided to the staff of co-operatives under the guidance of central government.

### **Additional Special Funds**

National Agricultural Credit Fund at state level and National Stabilization Fund at the central level should be established.

### **Loan against Crops**

Crop loan should be given to the societies in suitable installments.

### **Dantwala Committee**

It was appointed by RBI to find out the difficulties faced by Regional Rural Banks.

### **Recommendations**

- Should make proper structural and functional changes in the banks.
- The development of RRB should go to every corner of India.
- The area of operations of bank should be restricted to a single district.
- RRBs should work at the middle level.
- The area where credit deficiency remains, the RRB, CCB and Primary Credit Societies should work in that place by proper coordination.

### **Madhavdas Committee**

It was appointed by RBI to find out the difficulties faced by Urban Co-operative Banks.

### **Recommendations**

- Encourage the setting of UCBs in small towns and semi urban areas.
- Financing Urban Co-operative Societies may be converted to UCB.
- Limit of raising loans by these banks from outside should be increase from 12 times to 20 times more.
- The face value of each share should be Rs. 25 each.
- Servant co-operative credit societies and co-operative credit societies should not accept deposits from others who are not members.

### **Agro Processing Co-operatives**

- Agro-processing is the co-operative transformation of agricultural products into consumables. Importance of Agro-processing Co-operatives.
- Role of co-operatives in in the development of the agro-processing industry in India Pricing policy of products such as cotton, oil seeds, sugarcane etc. is defective.
- There is inefficient supply of agricultural produce affecting the functioning of s.
- In most cases the private traders from co-operative processing s to safeguard their interest.
- Due to stiff competition and price fluctuations, processing companies cannot work to the fullest extent.
- There is a shortage of experienced personnel for the management of societies.



### **Contract Farming**

Agro processing companies enter into contracts with farmers to supply farmers with inputs such as fertilizers, seeds, pesticides and crop guidelines and to buy the products back at a rate specified in advance.

### **Advantage for Farmers**

- As there is no middle man, they get the better price for the product.
- They have secured markets for their products.
- They are assured of the quality of seeds and pesticides.
- They have received financial support in kind.
- They obtain efficient and timely technical guidance free of charge

### **Consumer Food Cooperatives**

The consumer food industry consists mainly of ready-to-eat or ready-to-cook products such as cocoa-based products, soft drinks, bakery products, biscuits, etc. –the bakery industry is the largest processed food industry. The annual turnover of bakery products is over 30 lakhs. Nearly 20 industries are engaged in the manufacture of cocoa products such as chocolate, malted milk, etc. with a production of 3400 tonnes.

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### **Functions of PACS**

1. Provide sufficient finance to members so as to reduce their dependence on money lenders.
2. Distribute agricultural products such as seeds, fertilizers, and pesticides etc. to member farmers.

### **Co-operatives are Classified into Different Types**

- Producer's co-operative Society
- Industrial co-operative Society
- Consumer's co-operative Society
- Marketing co-operative society
- Farming co-operative society
- Housing co-operative society
- Miscellaneous co-operative society

### **Producer's Co-operative Society**

They are made up of small producers who plan to obtain inputs (raw materials, components, tools and equipment) and to sell their output (finished goods) directly and without the involvement of intermediaries. They are also called industrial cooperatives. Goods are produced to meet members ' requirements. Goods can also be sold to outsiders for profit. Some of the profits earned are spent on the welfare of the Community and the balance is distributed among the members.

### **Consumers' Cooperative Societies**

They are the oldest form of co-operatives. They are designed for the benefit of consumers who want to get household goods at reasonable prices. These companies make bulk purchases of goods from producers directly or from wholesalers at wholesale rates and sell the goods to members. The goods are sometimes also sold to non-members. Consumers' cooperatives are formed by consumers to obtain their daily requirements at reasonable prices. Such a company buys goods directly from manufacturers and wholesalers to eliminate the profits of intermediaries. These societies protect lower- and middle-class people from the exploitation of profitable hungry businessmen. The company's profits are distributed among members in the ratio of purchases made by them during the year. Consumer cooperatives or cooperative stores operate mainly in urban areas in India. The first consumer cooperative was established in the province of Madras in 1903. There are currently around 9,000 consumer cooperatives in the country. There are primary societies at local level, central or wholesale societies at district level, the State Consumer Co-operative Federation at national level and the National Co-operative Consumer Federation at national level.

### **3.2 Marketing Cooperatives**

These are voluntary associations of independent producers who want to sell their products at remunerative prices. The output of different members is pooled and sold through a centralized agency to eliminate intermediaries. The sales proceeds are distributed among the members in the ratio of their output. As a central sales agency, the company can also perform important marketing functions such as processing, grading and packaging of output, advertising and exporting products, warehousing and transport, etc. Marketing societies are generally established by farmers, craftsmen and small producers who find it difficult to compete on the market and to perform necessarily.

#### **Increases Farmers Bargaining Strength**

Farmers join hands and form a cooperative society, they will be able to increase their bargaining strength, because their products are now marketed by a single agency.

#### **Direct Dealings with Final Buyers**

It outstrips intermediaries that eliminate exploiters and ensure fair prices for both producers and consumers.

#### **Credit Provision**

Marketing cooperative societies provide credit to farmers to save them from the need to sell their products immediately after harvest. This ensures better returns for farmers.

#### **Easier and Cheaper Transport**

This reduces the cost and disturbance of transporting products to the market. Storage facilities Cooperative marketing companies generally have storage facilities. Farmers can therefore wait for better prices; there is also no danger to their crops from rains, rodents and thefts.

#### **Grading and Standardization**

This task can be done more easily for a cooperative agency than for a single farmer. To this end, they can seek assistance from the government or even develop their own grading arrangements.

### **Market Intelligence**

The cooperatives can regularly obtain data on market prices, demand and supply, and other related information from the markets and can plan their activities accordingly.

### **Influencing Market Prices**

While previously market prices were determined by intermediaries and merchants, and helpless farmers were forced to accept whatever was offered to them, cooperative societies have changed the whole complexion of the game.

### **Provision of Inputs and Consumer Goods**

Cooperative marketing societies can easily arrange for bulk purchases of agricultural inputs such as seeds, manures, fertilizers, pesticides, etc. and consumer goods at relatively low prices.

### **Provision of Inputs and Consumer Goods**

Cooperative marketing societies can easily arrange for bulk purchases of agricultural inputs such as seeds, manures, fertilizers, pesticides, etc. and consumer goods at relatively low prices and can then distribute them to members.

### **Processing of Agricultural Products**

Cooperative societies can undertake processing activities such as crushing oil seeds, pressing of cotton, etc.

### **Progress of Cooperative Marketing in India**

In India, two types of cooperative marketing structures are found. In the first type, there is a two-tier system with primary societies at the base and state society at the apex. Under the second type, there is a three-tier system with primary companies at the village level, central marketing companies at the district level and the state marketing society at the apex.

Currently, the cooperative marketing structure comprises 2,633 primary cooperative marketing societies at the Mandi level, covering all major mandates in the country, 3,290 specialized primary marketing societies for oilseeds, etc., 172 Central District Federations and the National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) at the national level. NAFED is the apex cooperative marketing organization dealing with the procurement, distribution, export and import of selected agricultural commodities.

Different types of cooperative societies operating in India with different activities can be grouped into the following four categories

- Production co-operatives dealing with agricultural and industrial production, such as farming co-operatives, industrial co-operatives and processing co-operatives.
- Marketing co-operatives engaged in the marketing of agricultural products, such as agricultural marketing societies and consumer co-operatives.
- Service Cooperatives that provide services necessary for their members, such as Cooperative Credit Societies and Cooperative Banks and Housing Cooperatives,
- Allied Service Cooperatives dealing with activities necessary for the daily life and business of farmers, craftsmen, etc.

### **Farming Cooperative Societies**

After independence, the development of the farming sector was highlighted in order to ensure food and employment security in rural India. While various land reforms were implemented to ensure a fair distribution of natural resources, the consolidation of small and fragmented holdings was considered necessary to improve agricultural production. The Planning Commission therefore proposed the concept of cooperative farming to pool the land owned by small farmers for joint management. The approach proposed was either to retain individual ownership of the land and to lease the cooperative, or to transfer land ownership to the cooperative and to collect shares worth the value of Cooperative and collect shares worth the value of the land. The Cooperative could then pool the holdings for land improvement and intensive cultivation, using modern technologies. These farming cooperatives were supported with financial resources to develop land and water resources. By 1955-56, there were over 1000 cooperative farming societies with 1.9 lakh members, mainly in Punjab, Bombay and Utter Pradesh. The Government of India provided Rs.50 lakhs to promote these societies. By 1960-61, the number of cooperative farming societies grew to 6,325, with 3,05 lakh members. These cooperatives had cultivated 3.5 lakh ha.

Primarily as a Farm Forestry Cooperative that would address the issue of Climate Change, which had at the time caught the attention of the global community, IFFDC has over the time expanded its areas of concern to include several portfolios, most of these emerging out of its primary agenda of rural development are as follows

- Farm Forestry and Climate Change.
- Watershed Development and Climate Change (Ecological Resilience).
- Nutritional and Economic Security for Tribal and Marginalised Commies (NEST).
- Sustainable Rural Livelihood Development.
- Consultancy Programme.
- Cross Cutting Interventions (Community Institutions,
- Gender Mainstreaming & Women
- Empowerment, Capacity Building).
- Seed and Agri-inputs Supply

### **Agricultural Processing Cooperatives**

The first processing cooperative society was established in India for the establishment of a ginning factory in 1917. Subsequently, sugar processing cooperatives, paddy milling, groundnut decortication, copra and oil seed crushing, fruit processing, vegetables, tea and jute processing were established. These processing cooperatives with individual farmers, cooperative marketing companies and local service cooperatives as members are regulated by cooperative rules and by-laws.

Farmers in India have been growing sugar cane since time immemorial, but the first sugar plant was established by a French group in Orissa in 1824. In 1904, the first vacuum pan process sugar plant was established in Bihar. By 1932, there were 31 sugar factories, all in the private sector, producing 1.5 lakh tons while the annual consumption was approximately 12 lakh tons. Therefore India had to import sugar mainly from Indonesia. With favorable policies, there was a sudden spurt in the establishment of sugar factories. By 1933-34, there were 111 sugar factories with a production of 4.6 lakh tons, which further increased to 148 factories with a capacity of 11 lakh tons by 1940-41, all in

the subtropical regions of the north.

### **Agricultural Marketing Societies**

Establishment of marketing cooperatives were encouraged to provide marketing facilities to small farmers. The anticipated advantages were increase in bargaining strength of farmers, removal of intermediaries and direct interaction with consumers. There was also scope for availing credit and cheaper transport, storage facilities, grading and processing of agricultural produce to fetch better prices. The National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) was established in 1958 for promoting cooperative marketing of agricultural produce. NAFED has been procuring food grains, pulses, oilseeds, spices, cotton, tribal produce, jute products, eggs, fresh fruits and vegetables from farmers through its cooperative network in selected areas whenever farmers faced problems of marketing their produce. The advantages of cooperative marketing were increased bargaining strength of farmers, direct dealing with consumers, credit availability, cheaper transport, storage, grading and processing facilities and market intelligence. Indian Farmers' Fertilizer Cooperative Limited (IFFCO) was established in 1967 to produce and distribute fertilizers through cooperatives. Presently, over 40,000 cooperative societies are members of IFFCO. Initially, IFFCO commissioned an ammonia – urea complex at Kalol and the NPK/DAP plant at Kandla both in the state of Gujarat in 1975.

### **Agricultural Service Cooperatives**

Cooperatives play a very important role in disbursement of agricultural credit. These cooperatives have been aiming at increasing agricultural production through credit supply to agricultural producers, agricultural labourers, artisans, supply of agricultural inputs, arranging storage, marketing and processing of agricultural produce, arranging raw materials for industries and providing technical guidance, while promoting social and economic welfare. There have been cooperative land development banks, which provide long term loans to cultivators for land development and capital investments.

### **Allied Agricultural Cooperatives**

These cooperatives cover activities like dairy farming, poultry, piggery, etc. Among them, poultry was a major activity with over 4,876 cooperatives with 4.4 lakh members in 2003-04. However, most of the members were not poor. There were 14,339 fishery cooperatives in 2003-04, but many of suffered from inadequate financial and technical support and lack of coordination between production, storage and marketing.

### **3.3 Dairy Cooperatives**

According to Dr. V.Kurien, Chief Architect of the Anand Model, "Only one institutional structure has proven effective in achieving dairy development, which is a unified organization of producers responsible for the procurement, processing and marketing of milk for members, owned and controlled by milk producers and therefore responsive to the needs of producers"

The common need of milk producers is to obtain a fair price for their milk, and this is achieved through collective marketing. Milk is considered to be one of the most sensitive agricultural commodities requiring special and timely care and can be provided conveniently through the collective operation of cooperative dairy societies. In addition to the collection and marketing of milk, other services such as dairy inputs, extension services, veterinary health care, artificial

insemination services, animal feed provision, fodder seed, planting material, fertilizers and credit, and training and education can also be provided through cooperatives. Dairy cooperatives vary widely in size and function, some only arrange for the sale of member's milk and provide few services, while others produce a wide range of products and can market their own branded products directly to consumers. In addition, many offer their members support services, such as providing field services, checking weights and testing milk, selling milk production equipment and supplies and providing health insurance.

The role of dairy cooperatives in the procurement of milk and the provision of necessary services to dairy farmers distinguishes them from other milk marketing channels. The dairy farmers who sell the milk to the dairy cooperatives get fair prices for their product. These centers also provide financial security and give money to dairy farmers at certain intervals. Thus, the dairy farmers receive a consolidated amount from the dairy cooperatives. The main constraint with this channel is the delay in payments by the dairy cooperatives. The poor households cannot wait for longer periods to receive payments and prefer to transact their marketable surplus via other channels.

### **Dairy Cooperative in the World**

The establishment of a milk cooperative organization is another development in the modern dairy industry in India. For economic enterprises to function successfully in our villages, it is necessary to give them a corporate identity. In most developing countries, cooperatives have emerged as the most cohesive farmers' organization. They have the merit of combining freedom and opportunity for the small man with the benefits of large-scale management and organization, as well as goodwill and support from the community. In Germany, Israel, Denmark, Holland, the USA and New Zealand, more than 75 percent of the dairy business is organized by the cooperative sector.

Annual milk production in India has more than tripled in the last three decades, rising from 21 million tons in 1968 to 150 million metric tons in 2018. This rapid growth and modernization is largely attributable to the contribution of dairy cooperatives under the Operation Flood (OF) project, supported by many multi-lateral agencies, including the European Union, the World Bank, the Food and Agriculture Organization (FAO) and the World Food Program (WFP). Despite the impressive growth in milk production over the last three decades, the productivity of dairy animals remains very low. Within the organized sector, the cooperative sector is by far the largest in terms of volumes of milk handled, installed processing capacities and marketing infrastructure. The eighty-two thousand Dairy Co-operative Societies (DCSs) across the countries have a strong membership of almost 10 million landless, marginal and smallholder milk producers.

Dairy cooperatives account for the major share of processed liquid milk marketed in the country. Milk is processed and marketed by 170 Co-operative Unions of Milk Producers and 15 State Co-operative Milk Marketing Federations. Over the years, cooperative brands have become synonymous with quality and value. Brands such as

- Amul (GCMMF)
- Vijaya (AP)
- Verka (Punjab),
- Saras (Rajasthan)
- Nandini (Karnataka)

- Milma (Kerala),
- Aavin (Tamilnadu)
- Gokul (Kolhapur)

**Table 3.1 Per Capita Availability and Production of Milk in India**

Year	Per Capita Availability of Milk (G/Day)	Production of Milk (Million Tons)
2001-02	222	80.9
2002-03	234	85.9
2003-04	237	89.4
2004-05	240	92.2
2005-06	244	99.1
2006-07	246	100.9
2007-08	252	104.8
2008-09	258	108.5
2009-10	263	112.5
2010-11	281	121.8
2011-12	290	126.0

Source Economic Survey 2011-12, Ministry of Finance Government of India

### Operation Flood Objectives

1. To enable the liquid milk scheme of each city to restructure and capture a commanding share of its market
2. To identify and meet the needs of milk consumers and producers so that consumer preferences can be met economically and producers can obtain a larger share of the price paid by consumers for their milk
3. To facilitate long-term productive investment in dairy and cattle development
4. To ensure a sufficient supply of staff to handle every aspect of the project.
5. The three phases of Operation Flood have achieved a large part of their objectives.

### Operation Flood Phase I

Operation Flood linked 18 of India's leading milk sheds to consumers in India's four major metropolitan cities Delhi, Mumbai, Calcutta and Chennai

### Operation Flood's Phase II (1981–1985)

It is increased milk sheds (collection centers) from 18 to 136; 290 urban markets expanded milk outlets. By the end of 1985, there was a self-sustaining system of 43,000 village cooperatives covering 4, 25 million milk producers. Domestic milk-powder production increased from 22,000 tons in the pre-project year to 140,000 tons by 1985, all the increase from dairies established under Operation Flood. Producers' cooperatives have increased the direct marketing of milk by several million liters a day.

### Operation Flood Phase III (1985–1996)

It enabled dairy cooperatives to expand and strengthen the infrastructure needed to procure and market increasing volumes of milk. Veterinary health services, feed and artificial insemination services for cooperative members were extended and member education intensified. Phase III consolidated India's dairy cooperative movement, adding 30,000 new dairy cooperatives to the 42,000 existing societies organized during Phase II. Milk sheds peaked at 173 in 1988-89, with the number of women members and Women's Dairy Cooperative Societies increasing significantly.

Most dairy cooperatives in India are based on the principle of maximizing farmers ' profit and productivity through cooperative efforts. This pattern, known as the Anand Pattern, is an integrated cooperative structure that procures, processes and markets. Supported by professional management, producers decide their own business policies, adopt modern production and marketing technology.

The Anand model cooperatives have progressively eliminated intermediaries, bringing producers into direct contact with consumers. Despite the opposition of intermediaries and other strong vested interests to these projects, Dr. Kurien, former Chairman of the National Dairy Development Board, has been able to make major breakthroughs in the dairy and oilseed sectors supported by the highest level in the Government of India.

### **Three-tier Structure**

#### **Village Society**

Anand Pattern village dairy cooperative society (DCS) is formed by milk producers. Any producer can become a DCS member by buying a share and only selling milk to society. Each DCS has a milk collection center where members take milk every day. Each member's milk is tested for quality with payments based on the fat and SNF percentage. At the end of each year, a portion of the DCS profits is used to pay each member a patronage bonus based on the amount of milk poured.

#### **The District Union**

A District Cooperative Milk Producers Union is owned by dairy cooperative societies. The Union buys milk from all societies, then processes and markets fluid milk and products. Most Unions also provide DCSs and their members with a range of inputs and services feed, veterinary care, artificial insemination to support the growth of milk production and the business of cooperatives. Union staff train and provide consultancy services to support DCS leaders and staff.

#### **The State Federation**

Cooperative milk producers ' unions in the form of a State Federation, which is responsible for marketing the fluid milk and products of member unions. Some federations also produce feed and support other union activities.

**The National Dairy Development Board (NDDB)** was established in 1965 with the mission of making dairy a vehicle for millions of grassroots milk producers to a better future. This commitment was rewarded with India's emergence as the world's largest milk producing nation. The Board's programs and activities aim to strengthen the functioning of dairy cooperatives by providing them with financial assistance and technical expertise in milk production, job creation, and availability of milk, foreign exchange savings and increased farmers 'incomes.

#### **Objective of Dairy Cooperatives in India**

- Arrange the collection center and distribution network.
- Arrange to process milk into milk products.
- Arrange to sell milk through your own depot and licensed vendors.
- Distribute cattle feed to milk producers and provide veterinary services.
- Provide technical services to member farmers, such as artificial insemination, veterinary facilities and the supply of quality seeds and root slips for the production of green fodder.



- Protect animal hybrid quality. Organize the dairy industry in a rural milk production and urban marketing system.
- Conduct research and development activities to improve productivity. Provide financial assistance

#### **Benefits of Dairy Co-operatives for Members Excludable Benefits**

- Reliable market access for the milk produced.
- Field services, market information and insurance.
- Knowledge of industry costs, returns and practices in the industry.
- Access to value-added margin from dairy processing activities.
- Representation in the legislative process at low cost.
- Negotiations on overdue premiums.

#### **Non-Exclusive Benefits**

- Balancing milk supplies among dairies.
- Transportation of milk to places where necessary.
- Provision of milk to deficit areas seasonally.
- Affecting policies and trade practices in favor of milk producers.
- Leadership in the effective legislative process

#### **Anand Pattern**

Anand Pattern is a rural development doctrine. Mulani has identified 14 key Anand Pattern elements. Single commodity approach Member ownership and control of cooperative democratic control and decentralized decision-making. Three-sided structure i.e. Village Cooperative Dairy, District Dairy Cooperative Unions and Dairy Federation.

- Use of professional managers and technology.
- Professional accountability to members.
- Coordination of dairy procurement, processing and marketing.
- Annual audit of village cooperatives and district unions.
- Daily or weekly quality milk payment. Investing in village social expenses capital
- Within the organized sector, the cooperative sector is by far the largest in terms of volumes of milk handled, installed processing capacities and marketing infrastructure.
- Coordination of milk procurement, processing and marketing
- Annual audit of village cooperatives and district unions.
- Daily or weekly quality milk payment.
- Investing in village social expenses capital. Autonomy of the pricing unions.
- Adoption of Anand Pattern bylaws.

The eighty-two thousand Dairy Co-operative Societies (DCSs) across the countries have a strong membership of almost 10 million landless, marginal and smallholder milk producers.

#### **Some of the Major Dairy Cooperative Federations Include**

- Andhra Pradesh Dairy Development Cooperative Federation Ltd (APDDCF)
- Bihar State Cooperative Milk Producers' Federation Ltd (COMPED)
- Gujarat Cooperative Milk Marketing Federation Ltd (GCMMF)

- Haryana Dairy Development Cooperative Federation Ltd (HDDF)
- Himachal Pradesh State Cooperative Milk Producers' Federation Ltd (HPSCMPF)
- Karnataka Cooperative Milk Producers' Federation Ltd (KMF)
- Kerala State Cooperative Milk Marketing Federation Ltd (KCMMF)
- Madhya Pradesh State Cooperative Dairy Federation Ltd (MPCDF)
- Maharashtra Rajya Sahakari Maryadit Dugdh Mahasangh
- Odisha State Cooperative Milk Producers' Federation Ltd (OMFED)
- Pradeshik Cooperative Dairy Federation Ltd (PCDF)
- Punjab State Cooperative Milk Producers' Federation Ltd (MILKFED)
- Rajasthan Cooperative Dairy Federation Ltd (RCDF)
- Tamilnadu Cooperative Milk Producers' Federation Ltd (TCMPF)
- West Bengal Cooperative Milk Producers' Federation Ltd (WBCMPF)

The National Cooperative Dairy Federation of India (NCDFI) was registered on December 07, 1970 under the Bombay Cooperative Societies Act (VII of 1925), extended to the Union Territory of Delhi with its headquarters in New Delhi. It was only in 1984, however, that it began to function as the apex of the cooperative dairy industry. In December 1986, the NCDFI moved its headquarters from Delhi to Anand, India's milk capital, to gain local advantage. In April 1987, the NCDFI by-laws were amended to comply with the provisions of the Multi-State Cooperative Societies Act. The NCDFI has 19 regular members, 11 associated members and the National Dairy Development Board.

### **Milk Federation Functions**

The main functions of the State Milk Marketing Federation are

- Marketing of milk and milk products.
- Manage production planning and state milk grid (milk movement within the state).
- Coordinate with government, central government, NDDB and other agencies.

The Milk Unions become members of the Cooperative Milk Marketing Federation by subscribing share capital to it in accordance with the by-laws of the Federation. The Federation is responsible for developing and implementing cooperative marketing policies for all member unions ' liquid milk and milk products, deciding on the product-price mix, cooperative provision of joint services (artificial insemination, breeding, cattle feed, etc.), cooperative marketing of technical inputs to members and strengthening the institutional structure of the dairy cooperative.

The Board of the Federation consists of the elected chairmen of all the members ' unions and the Managing Director of the Federation. There are also other members of the board as ex-officio and also as technical experts. The Board of the Federation develops the policies of the Federation in all its functions. Equitable distribution of profit shall be made on the basis of the business transacted by the milk unions with the Federation and in accordance with the provisions of the by-laws.

The Board of the Federation is advised by its Programming Committee, which is composed of the Chief Executive Officer of each member union, the Chief Quality Control Officer of the Federation and one or more non-voting co-opted technical experts. The Committee meets regularly and is also responsible for the day-to-day implementation of the Board's policies and plans. The core objective was institutionalizing the trade of Minor for TRIFED is a national-level apex organization functioning

under administrative control of Ministry of Tribal Affairs.

It was established in August 1987 by then Ministry of Welfare under Multi State Cooperative Societies Act 1984 (which has now been replaced by Multi-State Cooperative Societies Act, 2002).

- It is headquartered in New Delhi.
- Its core objective is to institutionalize trade of Minor Forest Produce (MFP) and Surplus Agriculture Produce (SAP) collected or cultivated by tribals as they are heavily dependent on these natural products for their livelihood.
- TRIFED also works as an agency to the FCI for procurement of Wheat and Rice.
- It also organizes exhibitions like National Tribal Craft Expo called “AadiMahotsav” etc. to promote and market tribal products.
- It also facilitates participation of tribal artisans to enable them to interact directly with art lovers to assess market needs.

### **3.4 Cooperative Marketing**

According to RBI, “Co-operative marketing is a c-operative association of cultivators formed for the purpose of helping members to market their produce more profitably than is possible through private trade”.

#### **Features of Cooperative Marketing**

##### **Single Commodity**

Deal only with the marketing of one agricultural commodity, e.g. Co-operative Marketing Society of Sugarcane, Cotton Co-operative Marketing Society.

##### **Multi-Commodity**

Deal in marketing the number of commodities such as food grains, oilseeds, etc.

##### **Multi-Purpose Multi-Commodity**

Deal in marketing the number of commodities and also perform other functions such as credit provision, supply of inputs, etc

#### **Structure of Marketing Cooperative**

- National Agricultural Co-operative Marketing Federation (NAFED)
- State Marketing Co-operative Society
- Dist. Marketing Co-operative Society
- Primary Marketing Co-operative Society

#### **Objectives of Cooperative Marketing Society**

- To sell the products of the member directly on the market, offering the best price.
- Improving the economic conditions of production by strengthening its negotiating power.
- Helping members to produce the best and most demanded product.
- Establish fair trade practices and prevent price manipulation.
- To help farmers obtain finance at a cheaper rate of interest rates.

## **Problems of Co-operative Marketing**

### **Illiterate Farmers**

Farmers are illiterate and do not know about the benefits of selling produce through co-operatives.

### **Low Price**

Mostly price offered by co-operatives are less than open market price.

### **New Societies**

Some of the societies are of recent origin and do not have adequate capital to work as efficient.

### **Insufficient Godowns**

Most of the societies do not have sufficient godowns to keep the produce and pledge loans.

Defective Loan Policy 50 to 90% of total loans are given as production and clean loans, which has resulted in high overdues.

**Domination of Traders** Societies are dominated by clever and intelligent traders and non-cultivators.

### **Shortage of Funds**

Societies are not in a position to provide trade credit to buyers because of shortage of funds. Untrained Personnel Society personnel are not trained, qualified and competent to compete with traders who already have a good hold. No Encouragement given by Apex Society like NAFED to primary co-operative marketing societies.

Cooperatives generally fall into the three main areas, as do farmer cooperatives. These cooperatives are described below. But it is important to note that many cooperatives do not fit solely and clearly into one category or the other, as many cooperatives will provide many services to their members.

### **The Three General Areas are**

- Marketing
- Supply
- Services

Marketing Cooperatives perform a service for farmers following the production of an agricultural product. Some marketing cooperatives also have cooperative marketing agreements. Supply Cooperatives are organized and operated by farmers to supply them with something they need in their farming operations.

Service Cooperatives may offer farmers two advantages that individual farmers may not be able to afford on their own (1) the acquisition and use of equipment; and (2) the recruitment of technically trained experts. Service co-ops could include transport, pest management, soil testing, animal testing, artificial insemination, irrigation, etc.

In the first type, there is a two-tier system with primary societies at the base and state society at the apex. Under the second type, there is a three-tier system with primary companies at the village level, central marketing companies at the district level and the state marketing society at the apex. Currently, the cooperative marketing structure comprises 2,633 Mandi-level primary cooperative marketing societies, covering all major mandates in the country, 3,290 specialized primary oilseed marketing societies, etc., 172 Central District Federations and the National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED)

### **National Agriculture Market (eNAM)**

National Agriculture Market or eNAM is an online trading platform for agricultural commodities in India. The market facilitates farmers, traders and buyers with online trading in commodities.[1] The market is helping in better price discovery and provide facilities for smooth marketing of their produce. The market transactions stood at ₹36,200 crores by January 2018, mostly intra-market. Over 90 commodities including staple food grains, vegetables and fruits are currently listed in its list of commodities available for trade. The eNAM markets are proving popular as the crops are weighed immediately and the stock is listed on the same day and the payments are cleared online. In February 2018, some attractive features like MIS dashboard, BHIM and other mobile payments, enhanced features on the mobile app such as gate entry and payment through mobile phones and farmers database is helping adoption even more. The present trading is done mostly for intra-market, but in phases, it will be rolled out to trade in inter-market, inter-state, creating a unified national market for agricultural commodities.

- A national e-market platform for transparent sale transactions and price discovery initially in regulated markets.
- Willing States to accordingly enact suitable provisions in their APMC Act for promotion of e-trading by their State Agricultural Marketing Board/APMC.
- Liberal licensing of traders / buyers and commission agents by State authorities without any pre-condition of physical presence or possession of shop /premises in the market yard.
- One license for a trader valid across all markets in the State.
- Harmonization of quality standards of agricultural produce and provision for assaying (quality testing) infrastructure in every market to enable informed bidding by buyers.
- Common tradable parameters have so far been developed for 25 commodities.
- Single point levy of market fees, i.e. on the first wholesale purchase from the farmer.
- Provision of Soil Testing Laboratories
- The broad role of the Strategic Partner is comprehensive and includes writing of the software, customizing it to meet the specific requirements of the mandis in the States willing to integrate with NAM and running the platform.

### **3.5 Tribal Co-operatives**

The tribal in India suffered too much because of their exploitation by professional money lenders, private traders and forest contractors. In order to save the tribal from the old exploitation, many committees and commissions recommended the co-operativization of the tribal economy. The cooperatives were expected to bring about radical changes in the socio-economic condition of the tribal population. Renuka Ray Commission recommended that commercial exploitation of forests be entrusted to Forest Labor Co - operatives rather than to contractors and operating profits to be used for tribal welfare.

The Tribals must have a direct share in the profits of the forest. For this purpose, genuinely remunerative coups should be reserved for allocation to Tribal Co-operative Societies at a fixed upset price, which should be calculated in order to allow a substantial profit margin. The Co-operative Society should be confined to tribals and no outsider should be allowed to become a member.

The Tribal Cooperative Marketing Development Federation of India Limited (TRIFED), established on 6 August 1987 and operates under the administrative control of the Ministry of Tribal Affairs, Govt. of India. TRIFED has its headquarters in New Delhi and 14 regional offices across the country, including TRIFED Regional Office, Bhubaneswar. The islands of Odisha, West Bengal, Andaman and Nicobar are under the jurisdiction of the Bhubaneswar Regional Office. TRIFED is established for the marketing development of tribal products, such as Minor Forest Products and Tribal Handicraft Products, by offering the Tribals the best remunerative price.

TRIFED trained the tribal craftsmen to improve their skills to produce better artifacts to match the latest market trends so that the tribal craftsmen get better prices, thereby improving their economic conditions and living standards. It is committed to the cause of tribal development through the marketing of tribal handicrafts not only on the domestic market, but also on the international market by participating in exhibitions organized by the government and other organisations.

### **Highlights of Tribal Cooperatives**

- Inclusive growth subsumes tribal development
- Scheduled Tribes population in India is 10.43 Cr. i.e. 8.6 percent of the national population (Census, 2011)
- Transforming tribal community growth is central to the development of Minor Forest Production (MFP)
- About 50 percent of the tribal population is estimated to reside in forested areas  
PESA, 1996 and Recognition of Forest Rights Act, 2006 conferred ownership of MFP to forest dwellers  
Collection and sale of MFPs contribute 40 – 60 % of tribal annual earnings, particularly tribal women, who collect/ primary process/use / sell the MFP In this backdrop.
- The Government of India launched Scheme for Marketing of Minor Forest Produce (MFP) through Minimum Support.
- According to the Haque Committee Report of May 2011, the procurement value of 14 major MFPs is estimated to be Rs 1900 Crores (including tendu& bamboo)
- Based on a survey and data collected by TRIFED, the potential stock value of the proposed 55 MFPs is estimated to be around Rs 20,000 Crores  
o ISRO Satellite imagery
- Based resource mapping began to further identify and pinpoint the availability of MFP in India

### **E-Commerce Platform of Tribes India**

Going Digital will lead to expansion of tribal commerce and the availability of tribal products over large area, reaping greater benefits for tribal artisans. E-commerce (electronic commerce) website - [www.tribesindia.com](http://www.tribesindia.com) has hence been made available for sale of all its products.

### **The categories of tribal products sold in the platform include**

- Metal Craft
- Tribal Textiles
- Tribal Jewellery
- Tribal painting
- Cane & Bamboo

- Terracotta & Stone Pottery
- Gift and Novelties
- Organic and Natural Food Products
- Services available
- The users can browse through the various categories of products available in the platform.
- The users can buy authentic items online through digital payment methods.
- The purchased items are delivered at your doorstep in a prompt manner.

### Summary

Cooperatives first emerged as distinct legal institutions in Europe in the nineteenth century. In the difficult years of the 1840s, Cooperatives achieved their first permanent successes in five distinct traditions. Cooperative societies create a direct link between the producers and the consumers by expelling the middlemen out. As a result, producers avail a sure market and get good return for the milk. Cooperative societies also fulfill the need of the dairy farmers. It makes the dairy farmers realize that the dairy business can definitely be a profitable one.

### Useful links

- <https://www.nddb.coop/links/dairycoop>
- <https://tribal.nic.in/Schemes.aspx>
- <https://tribal.nic.in/>

### Model Questions

1. What is the importance of credit cooperatives?
2. Discuss the significant role of TRIFED.
3. Discuss the AMUL uniqueness system in diary cooperatives.
4. Discuss the cooperative marketing strategies in the rural products.
5. Enumerate features of Tribal, and Dairy Cooperatives in India.

### To Do Activity

- Read the credit cooperatives credit policy documents
- Get the recent credit disbursements in different types of rural based activities.

# Chapter 4 Financing & Management of Cooperative

## Introduction

Agricultural finance is as important as other inputs used in agricultural production. Technical inputs can only be purchased and used by farmers if they have money (funds). But his own money is always inadequate, and he needs finance or credit outside. Agricultural finance capitalizes farmers to make new investments and/or adopt new technologies.

A cooperative is operated primarily to provide benefits to members through marketing transactions, including input purchases and output sales, and through the distribution of patronage income from these transactions; in return, members are responsible for providing equity capital — ownership — and exercising member control— governance. Members are quick to seek the benefits of the cooperative business model, but often reluctant to accept the corresponding ownership and control responsibilities. Today, three functions underlie broad cooperative principles. These are advantages, control and ownership.

In general, there are four unique and separate user roles customers, employers, owners and members. Those who buy or sell marketing transactions with the co-op are customers. Patrons are customers who are granted a patronage income claim proportionate to their use as patrons and customers. The claim is not based on ownership unless ownership is proportionate to the patronage. This is the core difference between employer-oriented and investor-oriented business models. The co-operative also owns the patrons. They have ownership rights derived from the provision of equity capital. Through their voting power, patrons who qualify as voting members are given control.

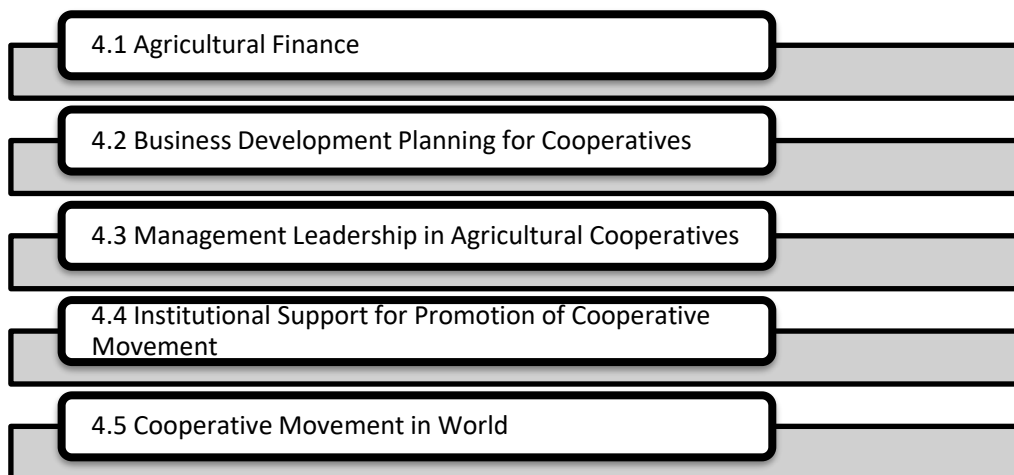
When forming a cooperative enterprise, cooperative leaders must plan how they will acquire sufficient capital to finance the start-up of the enterprise. Potential capital sources for new co-operatives include member investment and debt financing. Investment of capital by persons or organisations, which are not members of the cooperative, is prohibited under the cooperatives Act. Provincial legislation also prohibits cooperatives from accepting most types of venture capital.

## Objectives

- To understand the Financing pattern and sources of Agricultural Cooperatives
- To understand the importance of MIS.
- To know about impact of promotion of cooperative movement.
- To know the initiatives in the education and training for management of cooperatives.



## Structure



### 4.1 Agricultural Finance

#### Definition of Agriculture Finance

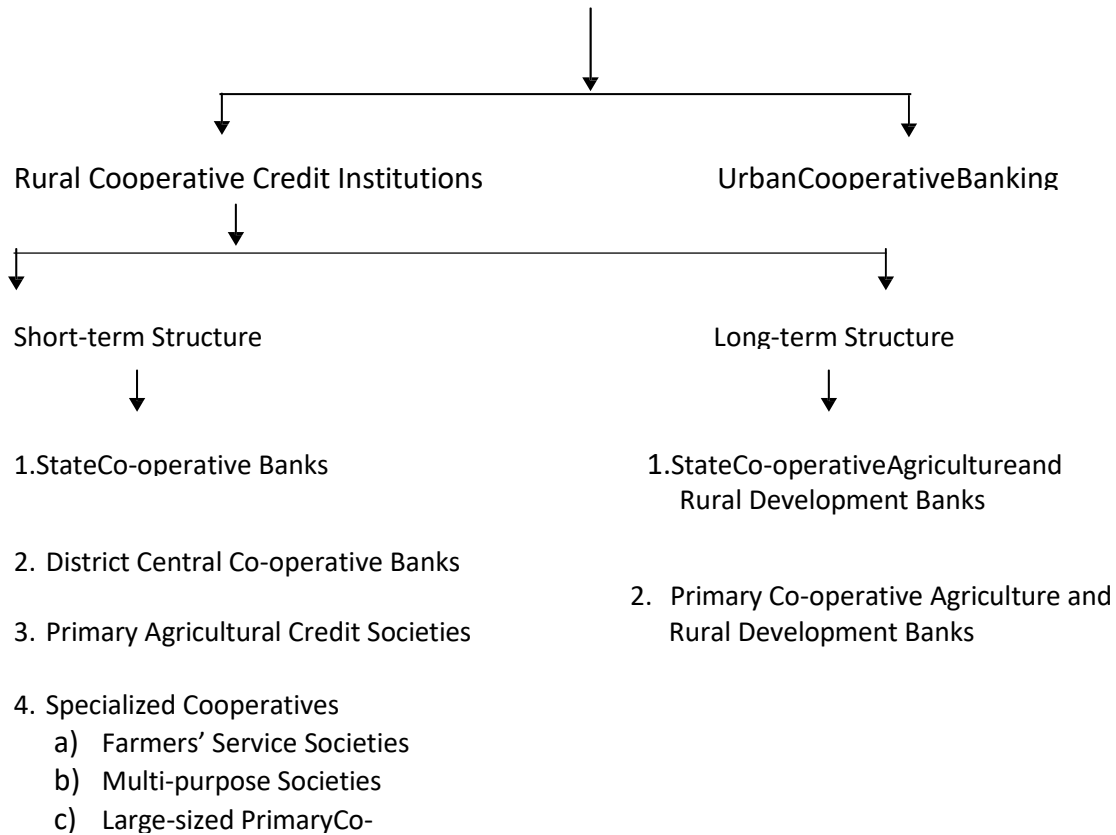
Agricultural finance can be handled at both micro and macro level. Macro-finance deals with a diverse resource for agriculture as a whole in the economy. It also deals with the loan process, rules, system, monitoring and control of various agricultural credit organisations. Therefore, macro-financing is associated with agricultural financing at aggregate level.

Murray (1953) defined agriculture Finance as "an economic study of farmers ' borrowing funds, the organization and operation of farm lending agencies, and the interest of society in agriculture credit." Tandon and Dhondyal (1962) defined agriculture. Finance "as a branch of agricultural economics that deals with and financial resources related to individual farm s."

#### Characteristics of Agri Finance

- Agriculture financing is essential and important in the country's agro-socio-economic growth.
- Agriculture finance plays a catalytic role in strengthening the farm business and increasing the productivity of scarce resources.
- Financing for agriculture helps to use new technological inputs purchased through farm financing to increase agricultural productivity.
- Financing for agriculture can increase farm income.
- Farm finance can also reduce regional economic disparities and is equally good at reducing inter-farm asset and wealth variations.
- Farm finance is similar to a lever with both forward and backward links to economic development at both major and minor levels.
- As agriculture is still conventional and subsistence in nature, agricultural financing is required to create supporting infrastructure for the acceptance of new technology.
- Micro-and macro-irrigation projects, rural electrification, installation of compost and pesticide plants, implementation of agricultural promotion programs and poverty alleviation programs in the country are intended for agricultural investment.

## Structure of Co-Operative Credit



### Types of Co-operatives in Agriculture

- Co-operative Credit
- Co-operative Farming
  - Co-operative Tenant Farming
  - Co-operative Collective Farming
  - Co-operative Better Farming
  - Co-operative Joint Farming
- Co-operative Marketing
  - NAFED
  - NCDC
- Co-operative Processing
- Co-operative Storage
- Consumers' Co-operatives
- Women Co-operatives

### Agricultural Finance Sources

Indian farmers are forever afraid of ecological elements and natural elements, spoiling farmers' bodies. Every year, many farmers end their lives because their crops are spoiled and they have no way of surviving. They have a big problem how to live and how to farm. They want financial support,

therefore. They are of two types, first institutional and second non-institutional.

- Cooperative Banks
- Land Development Banks
- Indian Commercial Banks - Scheduled and Non - Scheduled
- Regional Rural Banks
- Agricultural Refinance and Development Corporation
- Agricultural Finance Corporation Ltd
- State Bank of India and its Associates
- National Agriculture and Rural Development Bank

The co - operative movement has been started in India mainly with a view to providing farmers with finances for agriculture at low interest rates and projecting them from the clutches of money lenders.

### **Central Cooperatives Banks (CCB)**

CB is a district-based cooperative credit institution.

#### **CCB Types**

- CCB membership of which is confined to individuals only.
- CCB the membership of which confined to co-operative societies only.
- CCB the membership of which is open to both individual and co-operative societies.

#### **Objectives of CCB**

- To provide finance to primary cooperative credit societies when there is shortage of funds.
- To provide safe avenue for investment of reserves of co-operative societies.
- To collect savings from members and general public.
- To create banking facilities for their members.
- To develop cooperative movement in their respective districts.

### **Apex Co-operatives Banks (ACB)**

ACB is a cooperative, state-owned credit institution. There is generally one State Cooperative Bank (SCB) for each state.

#### **Objectives & Functions of ACB**

- To supervise and guide CCB activities.
- Providing funding to the CCB when there is a shortage of funds
- Providing the investment channel to the CCB
- Formulate and implement credit policies for cooperatives throughout the state.
- Control with the money market and RBI. To act as a banking center and co - operative financing agency

### **State Co-operative Bank (SCB)**

#### **Objectives**

- To grant credit to need and creditworthy farmers.
- To provide crop loans.
- To participate in the share capital of District, Rural and Urban Cooperative Banks.

- To provide raw material to industrial co-operatives and to sell their finished goods.

### **Regional Rural Banks**

In 1975, five RRBs were set up in Jaipur, Moradabad, Gorakhpur, Bhiwani and Malda. The share capital of RBB is subscribed by the central government (50 percent), the state government concerned (15 percent) and the sponsoring Commercial Bank (35 percent). The sponsoring banks are SBI, PNB, Syndicate Bank, ed Commercial Bank, ed Bank of India, etc.

### **Urban Co-operative Bank (UCB)**

The first UCB was set up in Kanjivaram in 1904. The credit needs of the middle class and the small income group of urban areas increased and thus various committees, such as the Mallegan Committee, made recommendations for the expansion of the UCB.

### **Objectives of UCB**

- To provide credit to members at a reasonable interest rate
- To provide credit for the security of valuable goods and immovable property.
- To lend credit to small merchants, small industrialists and craftsmen.
- To discount bills and to perform all banking functions.
- Accept deposit and raise capital through share capital.

### **UCB Grants the Following Types of Credits**

- Short - term credit – gold, silver security.
- Cash credit – to processional manufacturers for the storage of goods.
- Consumption loan – for children's marriage and education.
- Concessional interest rate credit – for small - scale industrialists.

### **Land Development Cooperative Bank (LDCB)**

First Land Development Bank in India was established in Madras in 1929. The main reason for LDB development is that most financial institutions only provide agriculture with short-term credit and long-term loans. The LDCB has been renamed the State Co-operative Agriculture and Rural Development Bank. The functions of the LDCB Bank provide credit for the following purposes consolidation of land holdings or purchases of land. Renovation of lands, cultivation of waste lands and land fencing. Construction of farm houses and cattle sites.

NABARD is an apex institution for making policy, planning and operations in the field of credit for agriculture and other economic activities in rural areas. The bank was setup by the Indian Parliament in 1982. NABARD has paid up capital of Rs. 2000 crores, which was contributed by the Government of India and RBI in equal proportion.

### **Functions of NABARD**

- It works as an apex body, which looks after the financial needs of agriculture and rural development.
- Provides short-term loans to state cooperatives for seasonal agricultural operations
- Provides medium-term loans to state cooperatives and RRBs for approved agricultural operations.

- Provides long-term loans to state cooperatives, RRBs and commercial banks for investment in agriculture.
- It develops policy and plans relating to agriculture and allied activities.
- It prepares rural credit plans for all districts in the country.
- It maintains research and development funds for research in agriculture and rural development.
- It inspects the central and state cooperative banks and RRBs.

### **Commercial Banks**

Commercial banks also provide finance to the FCI, and the State Government agencies for food procurement operations. Banks also provide credit for storing and distribution of agricultural inputs. They are implementing the 'village adoption scheme', originally initiated by the SBI, to look into credit and other needs of the farmers.

Farmers also get commercial bank assistance under various schemes as Small Farmers Development Agencies (SFDA) and Marginal Farmers and Agricultural Labourers (MFAL). Commercial banks have also sponsored regional rural banks as per the 20-point Programme with a view to extending credit to small and marginal farmers and protect them from the exploitation of moneylenders.

Commercial banks now provide both direct and indirect finance to agriculture. Direct finance is provided for short and medium terms to enable farmers carry out agricultural operations smoothly. Indirect finance is provided in the form of advances for the purchase of inputs like seeds and fertilizers. Such loan is also provided through PACs.

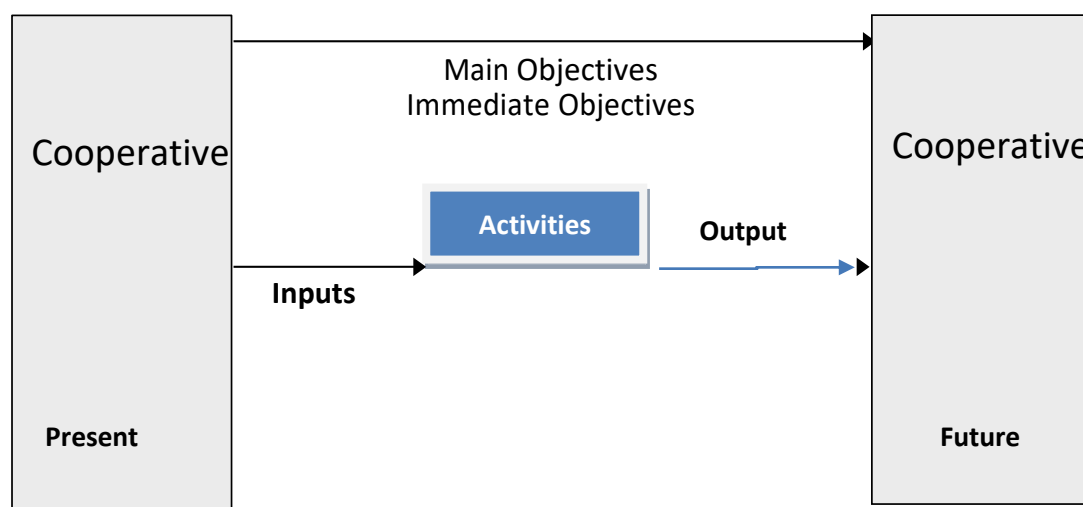
Commercial banks not only provide assistance for agricultural operations but also for extending credit to services which provide infrastructural facilities such as storing and warehousing of agricultural produce, marketing, transporting and repairing of agricultural implements.

### **4.2 Business Development Planning for Cooperatives**

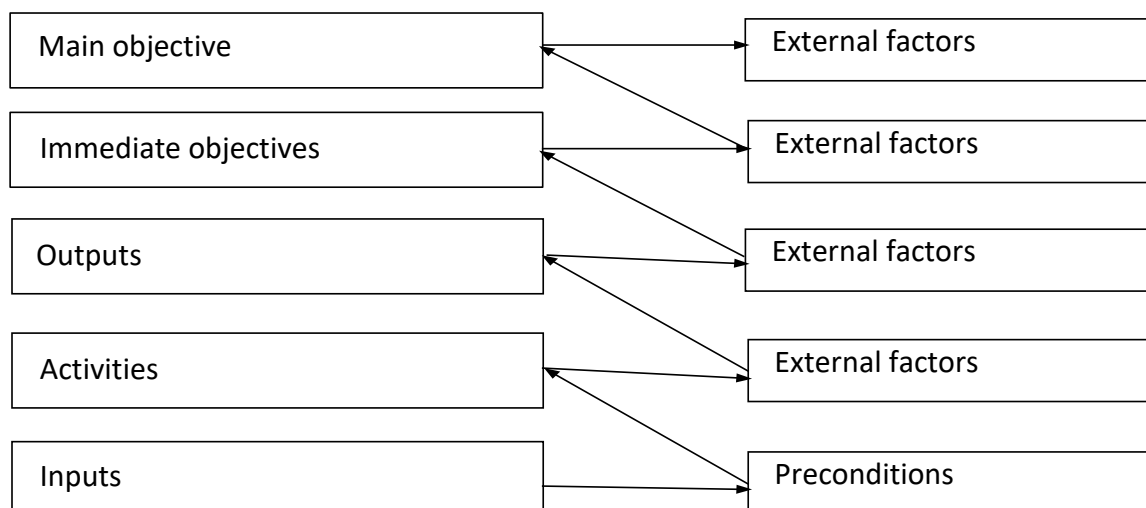
Strategic planning is a detailed planning, which facilitates efficient and effective achievement of organizational goals. Nowadays, this concept is widely used in business. Strategy and strategic planning concepts are also widely used in the dairy cooperative sector. On the global market, the WTO has played a vital role. It creates business opportunities and challenges, especially in developing countries. Liberalized economic policy and globalization have created larger markets for cooperatives. It is great opportunities for cooperation. The agricultural sector is economically important not only in developing countries, but also in industrialized countries.

Members are the cardinal stakeholders of any cooperative, as the growth of the organization depends solely on its patronage. Unfortunately, neither the members are aware of their role nor the other stakeholders (management committee, employees, government, etc.) are ready to recognize and respect this role. Members should realize that their eternal vigilance alone can guarantee the autonomy, independence and progress of their cooperative. The words of Luzatti, the famous Italian cooperator, assume relevance here "A cooperative with vigilant members and a weak financial base will be preferred to a cooperative with casual members with a strong financial base."

## Planning - A Logical Frame Work



Note This Model Adopted from NORAD,1992.



### Market Information Systems

The Agricultural Market Information System (AMIS) is an inter-Agency Platform to enhance food market transparency and encourage coordination of policy action in response to market uncertainty. The initial focus of AMIS is on four crops that are particularly important in international food markets, namely wheat, maize, rice and soybeans.

AMIS seeks to strengthen collaboration and dialogue among main producing, exporting and importing countries. Apart from G20 members plus Spain, participants in AMIS include seven major producing, consuming and exporting countries of commodities covered by AMIS. Together, these countries represent a large share of global production, consumption and trade volumes of the targeted crops (typically in the range of 80-90 percent), AMIS reaches out to other key stakeholders in international food markets such as commodity associations and institutional investors.

Because it involves all major importing and exporting countries together with all major private operators on the world food market, AMIS generates harmonized analysis and information on

stocks, prices, trends and forecasts, hence permitting to avoid the contradictory information signals that occurred during the 2007-2008 food crisis.

The AMIS Secretariat is formed by the following international organizations and entities: FAO, GEOGLAM, IFPRI, IFAD, IGC, OECD, UNCTAD, the UN High Level Task Force (UN-HLTF), the World Bank Group, WFP, and WTO. Contributions from the International Organizations to the fulfilment of the functions of the Secretariat reflect those organizations' comparative advantage and expertise. The Secretariat, housed in FAO headquarters in Rome, supports all functions of the "Forum" and the "Information Group" of AMIS. It is governed by a Steering Committee that has representatives from each of the eleven member organizations.

- Supermarket/Large Corporate Driven Food Chains
  - Cooperatives/Producer Organizations/Other Aggregations
  - Laissez-Faire / Open, Unorganized Markets / Business as Usual
- Each of these systems will define Agriculture Related Information Systems Food Chains / Marketing Systems and consumed by every actor in the value-chain

The Agriculture Market Information System (AMIS) i.e. in general Market Information System is an inter-agency platform to enhance food market transparency and encourage international policy coordination in times of crisis. It was established at the request of the Group of Twenty (G20) in 2011. Countries participating in AMIS encompass the main producing and consuming countries of major food crops covered by the initiative: wheat, maize, rice and soybeans. AMIS is hosted by the Food and Agriculture Organization of the United Nations (FAO) in Rome/Italy and supported by a joint Secretariat, which currently (September 2016) consists of eleven international organizations and entities. Apart from FAO, these are the Group on Earth Observations Global Agricultural Monitoring (GEOGLAM) initiative, the International Fund for Agricultural Development (IFAD), the International Food Policy Research Institute (IFPRI), the International Grains Council (IGC), the Organisation for Economic Co-operation and Development (OECD), the World Food Program (WFP), the World Trade Organization (WTO), the United Nations Conference on Trade and Development (UNCTAD), the United Nations High-Level Task Force on the Global Food Security Crisis (UN-HLTF), and the World Bank.

### **Objectives**

According to the Terms of Reference that established Agriculture MIS, the following objectives are central:

- Improve agricultural market information, analysis and short-term supply and demand forecasts at both national and international levels.
- Collect and analyze policy information affecting global commodity markets, and promote international policy dialogue and coordination.
- Report on critical conditions of international food markets, including structural weaknesses, and strengthen global early warning capacity on these movements.
- Build data collection capacity in participating countries by promoting best practices and improved methodologies, providing training to national stakeholders and facilitating the exchange of lessons learned among participating countries.

### **Problems in Indian Agriculture**

- Farmers unaware of the suitable crop for their land and fertilizers required.

- Increasing population growth fueling the need for agricultural products.
- Government's proposal to come up with soil card enables farmers know the right fertilizers required for their land.
- Government's support for fertilizer industries in India.
- Unpredictable weather condition.
- Excessive use of chemical fertilizers and pesticides degrading the soil quantity.
- Like many farmers he is unaware of the right quantity of fertilizers required for the crop.
- Like in many part of India, we assume rain is uncertain even at his location.
- Like many farmers in India, we assume our farmer is facing issues in selling his agricultural products at a right market at an appropriate price.
- The farmer can access the kiosks to get weather and other information.

The value of a MIS depends to a large extent on the overall quality (timeliness, accuracy, reliability and relevance) of the data collected. Therefore, in implementing an information collection system, it is necessary to develop procedures to ensure that the data collected are reliable and accurate. This can be extremely challenging because of the specific nature of food market prices

In addition to price information, several other services could be offered to farmers, depending on their location and the products produced. The CTA (2015) identifies these as

- Weather, current and forecast temperature, rainfall, wind strength, humidity
- News news relating to the commodity in question
- Trade quantities and volumes traded at selected markets, and across borders.
- Warehouses location, quality and grades
- Inputs type and prices of inputs sold (retailer, wholesaler and importer)
- Demand consumption levels and patterns
- Production crop types, area planted, stocks, yield levels, crop calendars
- Financial foreign exchange, tariffs, insurance
- Regulations taxes, standards, export requirements

#### **Electronic Commerce (E-commerce) and use of Internet**

Traditionally commerce is a dynamic business process which enables the interaction between the buyer and seller for a business transaction. E-commerce is an extension of the commerce on the Internet. E-commerce is exchanging products and services online on the Internet. The foundation for successful e-commerce is extension of an outline cash register. Before a business can expect to engage in successful e-commerce, Internet public relations and marketing must play a crucial role in laying foundation for effective sales.

Internet public relations and marketing must play a crucial role in laying foundation for effective sales. In order to make a consumer willing to engage in e-commerce with a business, the business must present an image of reliability, trustworthiness, quality, professionalism and responsibility. E-commerce has a tremendous impact on the structure of business supply chains.

#### **4.3 Management Leadership in Agricultural Cooperatives**

Agricultural cooperatives must be effective in improving efficiency in the following key areas -

- Responding to the needs of members, thereby encouraging members ' participation.



- Providing technical support in marketing and supply areas.
- Enhancing members ' higher economic returns through value added.
- Providing adequate and timely credit facilities leading to higher productivity.
- Demonstrate a high level of management efficiency leading to a better ' good will '.
- Adopting open attitudes towards joint ventures and collaborations.

Despite the disadvantages and difficulties they face, the cooperatives are the best suited agricultural development institutions in the Asia-Pacific region. To a large extent, they are indispensable for accelerating development in general, and agriculture in particular. The remedy is to streamline their activities so that they can increase their own resources and improve their technical and management capabilities to safeguard the interests of their members. Successful examples of cooperatives that have taken such initiatives are not lacking. Such streamlining would only be possible if the leadership responsible for cooperative promotion and development.

The employees and board members of cooperatives also lack management skills, mainly because of inadequate training support within the movements. Many valuable business opportunities are missed because there is a lack of interaction between the board and the managers. Although the cooperatives were in good condition, but due to inadequate training, the members could not take advantage of these advantages. Due to the limited resources available to primary and secondary cooperatives, it was difficult for them to sponsor their staff for training at higher-level training institutions, even within the country or abroad. Management leaders have very little opportunity to interact with them.

#### **Role of Leadership in Cooperative**

- Encourage its fellow members to move forward.
- Convince prospective members that society will provide solutions to their problems—for the marketing of products, loans or the purchase of consumer goods.
- Guide members to set up an organization, undertake business and make the right decisions.
- Build confidence in members ' minds.
- Maintain proper coordination between members of society.
- Prescribe society's performance goal.
- Set the task, which must be assumed responsibility at any time.

#### **Enhancing Marketing Efficiency**

Reforms of the Cooperative Movement in many developing countries are all the more important as the world moves into an era of globalization, following the Uruguay Round Agreement of 1994. The cooperative marketing system must adapt to the increased competition for cooperatives to thrive or stagnate and die. To be competitive cooperatives, they must be efficient—both price-efficient and technically efficient. Farmers ' cooperatives should

- Upgrade technology, build capacity and increase investment, in agri-business and marketing through joint ventures and other suitable alternatives
- Increase competition by facilitating business entry and exit and removing territorial, timing and other options.
- Marketing efficiency is determined by technical efficiency and marketing system price efficiency.

- Technical efficiency addresses all aspects of increasing productivity in all marketing functions, such as storage, transport and processing, and thus determines marketing costs.

### **Factors Enhancing the Impact of Agricultural Cooperatives**

The following factors enhance the impact of agricultural cooperatives

#### **Internal Factors**

Viable and integrated cooperative – single commodity or multi-commodity, but providing input supplies with extension and output marketing, and social and cultural services;

- Strong vertical structural support;
- Trained professional and motivated staff.
- Enlightened, dedicated, and selfless leadership.
- Well-honed means to encourage members' involvement and participation.
- Comprehensive programmes for members' education and information.
- Value-added activities through the use of advance technologies.
- Provision for reasonable coverage of risk for loss of crops and dep

#### **External Factors**

- Positive support and helpful role of the government;
- Market reforms;
- Reasonable rate of growth in agriculture/economy;
- Availability of basic infrastructure;
- Healthy linkages with regulatory and development agencies and institutions

### **Qualities of a Cooperative Leader**

#### **Perception**

Leaders of co-operative education is known from their perception and awareness of cooperation.

#### **Performance**

Leaders are expected to participate actively in their cooperative business. They are also expected to maintain cordial relations with officials and non-officials in the interests of their cooperative.

#### **Attitude**

The attitude of the cooperative leaders can be classified as

- a. Attitude to cooperation
- b. Attitude towards the financing of banks and federal bodies
- c. Attitude towards state policy.

#### **Other Qualities**

Leader must be a good servant and not a master in the service of society. The co - operative leader has faith in cooperation, democracy and education.

### **Professionalism in Cooperatives**

- Adhere to the cooperative values framed by the International Co-operative Alliance.
- Consider the needs and interests of the members during the preparation of legal proceedings.
- Do not indulge in any financial malpractice.
- Maintain all accounts books in a transparent manner.

- Pay tax in time. Invest the funds wisely with maximum returns.
- Follow human resource development strategies, fair wages and ethics among employees.
- Organize in-house and outdoor training, training and development programs for employees.
- Update their technology and introduce modern technology.
- Participate in research, innovation and creativity techniques.

#### **Problems in Professionalization of Management in Co-operatives**

- Governmental way of working creates obstacles such as delays, laziness, etc.
- Being a democratic body, cooperatives generally influenced by the political system.
- More harm is caused by the members' lack of support.
- Reluctance to delegate authority and to give managers reasonable freedom.
- Managers and supervisors are not enthusiastic about this.
- Reluctant to learn new techniques.
- Deputation-Government deputies its officers as managers of cooperatives, who are not part of society and therefore cannot manage the business efficiently.

#### **4.4 Institutional Support for Promotion of Cooperative Movement**

International Co-operative Alliance (ICA) ICA is an NGO that es, represents and serves cooperatives worldwide. It was founded in 1895 in London. Its members are the National and International Co-operative Organization in all areas of activity. ICA has over 230 member organizations from over 100 countries. In 1946, ICA was granted UN Consultative Status. Role promotes and strength

#### **ICA Objectives**

- To promote and protect cooperative values and principles.
- Facilitate the development of economic and other mutually beneficial relations between its member organizations.
- Influence government to create a favorable environment for cooperative development.
- Networking and promotion of the exchange of experience.
- Mobilizing financial resources for cooperative development

#### **ICA Specialized Organization**

- International Co - operative Agricultural Organization (ICAO)
- International Co - operative Banking Association (ICBA)
- Consumer Co - operative International (CCI)
- International Co - operative Energy Organization (ICEO)

#### **National Co- operative Development Corporation (NCDC)**

##### **NCDC's role and functions**

- To provide loans and grants to various cooperative societies.
- Use the National Co-operative Development Fund for various development activities of co-operative societies.
- To provide technical facilities for agricultural cooperative society through the respective state governments.

- Participation in the share capital of the various cooperative societies working at the national level. To develop cooperative fields such as processing, warehousing, import-export of agricultural commodities, etc.
- To assist the government in the development of human resources.

#### **National Cooperative Union of India (NCUI)**

- NCUI has been entrusted with the responsibility of expanding the cooperative education program at national level.
- The Cooperative Education Program consists of a two-week course for secretaries and managers of primary agricultural cooperatives.
- Three days Leadership Development Program for ordinary members and potential members

#### **Central Warehousing Corporation (CWC)**

CWC operates 444 warehouses across the country with a storage capacity of 7,3 million tonnes. In addition to storage, CWC offers the following services

- Clearing and forwarding
- Procurement and distribution
- Procurement and distribution
- Disinfection and fumigation services
- Consultancy services.

#### **CWC Objectives**

- Running warehouses for the storage of agricultural products and notified commodities.
- Providing ancillary storage services such as transport, handling, etc.
- Arrangement of warehouse management training personnel.
- Expand institutional credit by warehousing receipts.
- Adding to national income by reducing storage losses.

#### **Khadi and Village Industries Commission (KVIC)**

In 1957, KVIC was established under the Khadi and Village Industries Commission Act 1956.

#### **KVIC Functions**

- Promote the sale of khadi products from the village industry and crafts.
- Encourage the Khadi and village industries by promoting research into production techniques in these sectors.
- Provide financial assistance to institutions or persons involved in the development of the khadi and village industries.
- Attend KVIC problems and suggest recommendations.
- Maintain a separate organization for the purpose of carrying out its activities.

#### **National Co-operative Consumer Federation (NCCF)**

NCCF is India's highest consumer cooperative body. It was formed in 1966 with its headquarters in Delhi.

### **NCCF Function**

- Establish processing and manufacturing s for consumer goods.
- Assist in import exports of consumer goods.
- Assist the functioning of consumer societies.
- Establish trade relationships with suppliers and manufacturers.
- Hold seminars, conferences, etc. to understand the problems of societies.
- Assist and guide state federations in their operations.
- Act as Chief Speaker of the Consumer Co-operative in India.

### **National Co-operative Housing Federation (NCHF)**

The National Co-operative Housing Federation (NCHF) was formed in the year 1969 as per the recommendations of a study group on co-operative housing. The state level and district level housing societies as well as the state level institution financing the housing societies can become a member of the NCHF.

### **Objectives**

- To establish financial institution at state level to help the primary housing co-operatives in getting loans at lower rate of interest.
- To undertake research and development work for reduction in the construction cost.
- To give technical and legal guidance to member societies.
- To explain various financial schemes to member societies.
- To give publicity of co-operative housing movement by publishing books, brochures etc.

### **National Federation of Industrial Co-operatives (NFIC)**

NFIC was established in 1966, with its headquarters in Delhi.

### **Objectives**

- To import, purchase and sell raw materials to member companies, too.
- To help in the marketing of products manufactured by member companies.
- To study the problems faced by industrial cooperatives and to propose solutions.
- Formulate and implement programs relating to the development of industrial cooperatives.

### **Co-Operatives movement in various five-year plans In India**

In the post-Independence period after 1947, the development of co-operatives increased and co-operatives played a fundamental role in the various plans formulated by the Planning Commission. Indian planners considered cooperation as an instrument of economic development, mainly in rural areas. India adopted a socialist pattern and pursued a policy of a mixed economy with characteristics of both capitalism and socialism. The Planning Commission, established in 1950, sets social and economic objectives based on equity and justice.

### **The First Five Year Plan (1951-56)**

This plan was an agricultural development plan and detailed the vision of the Co-operative Movement in India and the foundation for emphasizing Co-operatives and Panchayats as preferred organizations for socio-economic development. The Plan focused on the adoption of the organizational co-operative method to cover all aspects of Community development. It provided for

the establishment of urban cooperative banks, industrial workers' co-operatives, consumer co-operatives, housing co-operatives, the dissemination of knowledge through co-operative training and education and recommended that every government department follow the policy of building co-operatives.

#### **The Second Five-Year Plan (1956-1961)**

This plan emphasized "Building a Co-operative Sector as part of a Planned Development Scheme" as one of the central objectives of national policy. It aimed to enable cooperatives to become increasingly the main basis for the organization of economic activity. The Plan developed co-operative development programs based on the recommendations of the national policy.

#### **The Third Five Year Plan (1961-1966)**

The Agricultural Refinance Corporation was established in 1962 by the Government of India to provide long-term loans to cooperatives, through Central Land Mortgage Banks. In 1963, the National Co-operative Development Corporation (NCDC) was established as a statutory corporation by an Act of Parliament.

#### **The Fourth Five Year Plan (1969-1974)**

This plan prioritizes the reorganization of co-operatives to make the co-operative viable in the short and medium term. It also made necessary provisions to provide co-operatives with management subsidies and share capital contributions, as well as for the rehabilitation of central co-operative banks. It also stressed the need to orient policies in favor of small farmers.

#### **The Fifth Five Year Plan (1974-1979)**

The current plan took note of the high level of over-dues. In its recommended strategy for the development of co-operatives, special attention was paid to the correction of regional imbalances and the reorientation of co-operatives towards the underprivileged. Based on the recommendations of an expert group appointed by the Planning Commission in 1972, a structural reform of the set-up of co-operatives was envisaged.

#### **The Sixth Five Year Plan (1979-1985)**

This plan emphasized the importance of cooperative efforts aimed more systematically at improving the economic conditions of rural poor people. The National Bank for Agriculture and Rural Development (NABARD) Act was passed in 1981 and NABARD was established to provide co-operative banks with funding and to supplement the resources of commercial banks and regional rural banks to enhance credit flows to agriculture and the rural sector.

#### **The Seventh Five Year Plan (1985-1990)**

This plan indicated that while round credit progress has been made, poor recovery of loans and high levels of overdue concern. The Plan recommended, among other things, the development of Primary Agricultural Credit Societies as multiple viable s to re-align policies and procedures to expand credit flows and to ensure inputs and services particularly to weaker sections; special programs for the North-East region; strengthening the movement of consumer cooperatives in both urban and rural areas and promoting professional development.

### **The Eighth Five Year Plan (1992-97)**

The current plan focuses on the need to follow the Narsimham Committee report and seeks to strengthen co-operatives banking. It was formulated when the country was going through difficult circumstances, such as high inflation and recession in industry. The Eighth Plan emphasized building the Co-operative Movement as a self-managed, self-regulated and self-reliant institutional set-up, giving it more autonomy and democratizing the movement.

### **The Ninth Five Year Plan (1997-2002)**

The Multi-State Co-operative Societies (MSCS) Act, enacted in 1984, was amended in 2002 in accordance with the spirit of the Model Co-operatives Act. The targeted growth rate of agricultural output is expected to reach 3.82 percent per year, while agriculture is expected to reach 4.5 percent, and co-operatives are expected to contribute optimally to the sustainable economy. In 2002, the Government of India issued a National Co-operative Policy. The Policy's objective is to facilitate the entire development of co-operatives in the country.

### **The 10th Five Year Plan (2002-2007)**

The current plan to achieve a highly targeted annual agricultural growth and export rate, massive expansion and upgrading of agricultural marketing, storage and distribution infrastructure is given priority. Facilities for packaging, grading and certification of agricultural commodities and the development of future agricultural markets would receive special attention with adequate funds. To restore the credit system for rural cooperatives to health, to ensure that rural credit doubles over three years and that the coverage of small and marginal farmers through institutional lending is substantially expanded.

### **The Eleventh Five Year Plan (2007 - 2012)**

During the Eleventh Five Year Plan, many important schemes, especially in the credit sector, computerization, human resources development and public awareness, were formulated and implemented to facilitate the general public, especially farmers.

### **The Twelfth Five Year Plan (2012-2017)**

This plan focused on renewing PACS / LAMPS and ensuring their viability and profitability in order to make them financially stronger to provide farmers with greater support for rural credit. Encourage micro-credit groups and women Co-operatives to inculcate the habit of small savings in rural areas as a sub-system of co-operatives. The credit institutions of the cooperatives must function as facilitators for linking these small groups and women cooperatives with credit institutions.

### **Role of Reserve Bank of India (RBI) towards Cooperative Movement**

Prior to 1982, RBI provided funding and guidance for the development of co-operative movement through the Department of Agricultural Development. From 1982, NABARD.RBI convened a conference of people connected to the cooperative movement in 1951 and made some important recommendations.

### **RBI Performed the Following Functions**

- Improved operational efficiency of cooperative financing agencies.
- Helped the state government to reorganize primary agricultural credit societies.
- Build a cooperative credit structure in qualitative and quantitative terms.

- Developed policies to eliminate regional imbalances and extend more credit to small and economically backward farmers.

#### **Role of State Bank of India (SBI) towards Cooperative Movement**

- Provides financing to marketing and processing companies at nominal interest rates.
- Provide loans for working capital to the consumer cooperative.
- Grant advances against raw materials and finished goods to industrial cooperatives.
- Provide remittance facilities to cooperatives within certain limits.
- Provide debenture financing for Land Development Banks.
- Provides overdraft facilities at a concessional rate to Central Co-operative Banks.
- Maintain close coordination between RBI's Department of Agricultural Development.

### **4.5 Cooperative Movement in World**

#### **In England**

- In the 18th century, capitalist labor was exploited by the industrial revolution in England. Robert Owen, the father of the cooperative movement in England, began labor exchanges, formed labor colonies and demanded a separate labor act.
- Robert Owen, father of co-operative movement in England, started labour exchanges, formed labour colonies and put demand of having separate act for labours.
- To conquer capitalism, he started co-operative shops along with William King but could not succeed.

#### **Legal Provisions**

- In the year 1852 co-operative societies registered under Friendly Societies Act, which provide registration only to the societies with unlimited liabilities.
- After struggle of Christian society, government passed Co-operative societies Act in 1852, which registered only societies with limited liabilities and second-class societies.
- In 1862 Provident and Industrial Societies Act passed which was a landmark of legal recognition of co-ops in England.

#### **Consumer Cooperatives**

In 1863, "North England Co-operative Wholesale Agency and Depot Society" was established. The name of society was changed as "Co-operative Wholesale Society". It has its subsidiary bank and in 1937, it's started first co-operative shop.

#### **Agricultural Cooperatives**

- Farmers started agriculture and horticulture co-operative society in 1876.
- In 1956, agriculture societies formed co-operative federation, which provide guidance to member societies.

#### **In Germany**

- Co-operative credit society first started in Germany.
- In the villages, the Jew businessmen controlled the economic activities. They purchased goods from farmers at a very low price and sold at a very high price. Worse they had to borrow money from Jew moneylenders at high rate of interest.



- F.W. Raiffeissen, mayor of the city, “A Poor Peoples Committee” and a credit society of poor people who need credit .H. F. Schulze a German Judge founded a credit association in 1850.

### **In Denmark**

On the basis of Rochdale system, H. C. Sone started Co-operative movement in Denmark.

There are dairy, eggs, eatables, bread and fruits exporting, manufacturing and productive types of co-operative societies.

### **Features of Cooperatives in Denmark**

- Formerly Denmark was agricultural country, shifted towards dairy business and soon became one of the leading countries in the world.
- 70% of its dairy production is exported to England, Germany and other countries.
- Farmers have formed their local co-operative societies, which have their organizations at district and state levels.
- Representation of the society is given according to the milk supplied by them. Executive Board is elected among representatives.
- Agreements are made with the members for supply of milk for a period of 15 to 20 years against cash payment.
- Use various methods for production and processing of milk.
- Follow the principles laid down by the Danish government.

### **Remedial Measures**

1. Reform in Co-operative Laws.
2. Establish Professional Co-operative Management Centers.
3. Services of Professional Managers and Leaders.
4. Practice Good Human Resource Management

### **Cooperative Education and Training**

The need for cooperative education was highlighted by all the commissions that reviewed the work of the cooperative movement, such as the Mallagan Committee in 1915 and the Royal Commission on Agriculture.

The National Council for Cooperative Training (NCCT) is responsible for the organization, management and evaluation of cooperative training for employees.

NCCT also offers advisory services to the following institutions

- Vaikunth Mehta National Institute of Cooperative Management, Pune.
- Institutes of Cooperative Management (ICM)
- Regional Institutes of Cooperative Management (RICM)
- A cooperative postgraduate diploma offered at VAMNICOM, RICM Bangalore and ICM Bhopal. About 3 lakhs were trained every year.
- The National Cooperative Union of India, the State Cooperative Unions and the District Cooperative Unions are responsible for promoting, developing and implementing cooperative education for the member cooperatives. Around 600 cooperative educators are involved in this task.

Cooperative Education/Training is one of the cooperative principles which seek to provide Education/Training for cooperative members, elected representatives, managers and employees, so that they can contribute effectively to the development of their cooperative. Its importance cannot be overemphasized in cooperative development. Cooperative education/training stands in the center of the cooperative movement.

The cooperative rules laws and bye-laws of respective cooperative societies and the 1993 cooperative decree stipulated that some percentage of the cooperative society surplus should be appropriated as a provision for education, training and information of the members, management committee and other cooperative officials. Operational education involves member education, involves member education staff and public education. Cooperative education will result in the dissemination of information and the creation of the necessary information.

#### **The Purpose of Cooperative Education.**

- Providing knowledgeable members and physical ability in them.
- To produce efficient and results-oriented staff.
- To produce dedicated leaders who can bring ideals in a positive way.
- To produce dedicated leaders who can bring ideals in a positive way.

#### **Summary**

A key feature of the Indian Co-operative movement is that it has not only expanded numerically, but has continuously diversified its activities over the years. It has left almost no economic sector untouched. In addition to traditional activities such as credit, marketing, distribution, etc., it has penetrated into areas such as fisheries housing, handicrafts and handlooms. Over the years, several national organizations have also helped the Co-operative Movement. These organizations were set up at the request of and with the financial aid and statutory support of the central government.

#### **Useful links**

- <https://archive.india.gov.in/sectors/rural/index.php?id=6>
- <https://www.nddb.coop/links/dairycoop>
- <http://www.fao.org/tempref/docrep/fao/005/x0475e/x0475e03.pdf>
- [https://publications.cta.int/media/publications/downloads/1900\\_PDF.pdf](https://publications.cta.int/media/publications/downloads/1900_PDF.pdf)

#### **Model Questions**

1. Examine the merits and demerits of agribusiness.
2. Discuss the importance of planning and managing the cooperatives through the leadership.
3. Critically examine the five year plan contribution on Cooperative movement in India.
4. Discuss the Institutional support for cooperative movement.
5. Enumerate the various sources/types of agricultural finance.
6. Explain the importance of Market Information System.

#### **To Do Activity**

1. Collect the information about rural finance scheme through NABARD website
2. Get the information from modern agricultural business in FAO website.
3. Collect the information about modern agricultural allied activities in the world wide.

# Chapter 5 Insurance Schemes for Rural Areas

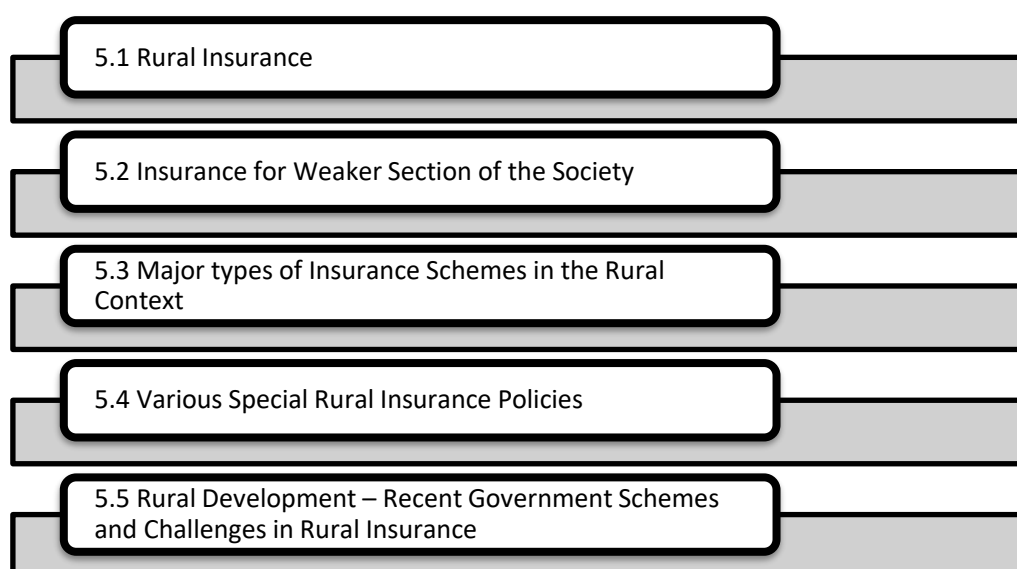
## Introduction

The insurance schemes are administered by various Central Ministries through insurance companies. For most schemes, the role of insurance companies is limited to settling claims forwarded to them. The responsibility of implementing the scheme lies either with the State Government or State-level organizations of Central Ministries. The implementing agencies act as links between the targeted groups and the insurance companies. Both public and private sector insurance companies are involved in operating the insurance schemes. In most schemes, the notable exceptions being health insurance schemes, the public sector insurance companies dominate the operations. In health insurance schemes, the three private sector insurance companies are also important players along with the public sector insurance companies. Typically, insurance companies are chosen through financial bids. While in most insurance schemes a single insurance company is selected to implement the scheme, there are schemes where multiple insurance companies operate at the State level. In such schemes, bidding is done at the State-level and one or more insurance companies are selected to operate the scheme. For life insurance schemes however, no bidding is done and the schemes are directly handed over to the Life Insurance Corporation of India (LIC) for implementation.

## Objectives

- To learn the Different Insurance Schemes Covered with Rural Areas
- To learn the importance and highlights of Insurance Risk Coverages

## Structure



## 5.1 Rural Insurance

### An Overview of Insurance Industry

The insurance industry of India consists of 57 insurance companies of which 24 are in life insurance

business and 33 are non-life insurers. Among the life insurers, Life Insurance Corporation (LIC) is the sole public sector company. Apart from that, among the non-life insurers there are six public sector insurers. In addition to these, there is sole national re-insurer, namely, General Insurance Corporation of India (GIC Re). Other stakeholders in Indian Insurance market include agents (individual and corporate), brokers, surveyors and third party administrators servicing health insurance claims.

### **Market Size**

Government's policy of insuring the uninsured has gradually pushed insurance penetration in the country and proliferation of insurance schemes. Gross premiums written in India reached Rs 5.53 trillion (US\$ 94.48 billion) in FY18, with Rs 4.58 trillion (US\$ 71.1 billion) from life insurance and Rs 1.51 trillion (US\$ 23.38 billion) from non-life insurance. Overall insurance penetration (premiums as % of GDP) in India reached 3.69 per cent in 2017 from 2.71 per cent in 2001. In FY19 (up to October 2018), premium from new life insurance business increased 3.66 per cent year-on-year to Rs 1.09 trillion (US\$ 15.46 billion). In FY19 (up to October 2018), gross direct premiums of non-life insurers reached Rs 962.05 billion (US\$ 13.71 billion), showing a year-on-year growth rate of 12.40 per cent.

In most schemes, financial support by the Government of India is in the form of premium contribution. The only exception is the National Agricultural Insurance Scheme (NAIS), where financial support is provided by Government of India (GoI) to both premiums and claims. Apart from direct contribution, the Government of India also provides support through contributions from the Social Security Fund (SSF) maintained with the Life Insurance Corporation of India (LIC).

Insurance has been mostly urban-oriented. But things are happening in rural areas, where human life and income-generating rural assets need protection, and there is enormous scope for developing insurance business. This shows the gross neglect of rural areas vis-à-vis insurance cover, although there has been a silent economic revolution in the villages since the late 1960s. Now that the insurance sector is open to the private sector and foreign companies, the government should pay serious attention to rural areas.

### **Definition of Rural Area**

The rural sector has been defined as the places or areas classified as —rural while conducting the latest decennial population census. People in the rural areas are largely engaged in agricultural pursuits such as cultivation, agricultural labor, and work in livestock, forestry, fishing, hunting, plantation, orchards and allied activities.

### **Definition of Social Sector**

The social sector is defined as including the unorganized sector, the informal sector, the economically vulnerable or backward classes and other categories of persons, both in rural and urban areas. The unorganized sector will include self-employed workers such as agricultural labor, bidi workers, brick kiln workers, carpenters, cobblers, construction workers, fishermen, hamals, handicraft artisans, handloom and khadi workers, lady tailors, leather and tannery workers, papad makers, power loom workers, physically handicapped self-employed persons, rikshaw pullers, safaikarmacharis, salt growers, seri culture workers, sugarcane cutters, tendu leaf collectors, toddy toppers, vegetable vendors, washerwomen, working women in hills or such other categories of persons.

Rural areas in our country are marked as the core occupation by agriculture and agriculture. Other sources of income, such as poultry farming, cattle raising, bee cultivation and fish farming, also have their place. Despite the fact that there are many sources of income, profits for the rural population are highly unpredictable, which is why many factors affect their 'production.' In the case of agriculture and agriculture, the production rate is precarious due to the constant changes in climatic conditions affecting the crop. Even non-agricultural sources of income, such as poultry, cattle, etc., may not produce the expected result because of the effects of epidemic or endemic health deficiencies.

In such cases, securing its assets financially reduces the losses of a farmer, which can only be achieved by "insurance." Extending insurance policies and services to rural areas will not only benefit farmers, farmers and craftsmen, but it can also expand the insurance companies' profits. Government of India has launched many programs for the farmers and agricultural labourers. Integrated Rural Development Programme (IRDP) also requires that plans include insurance for crops. These programs are mainly launched to provide the rural families with working capital, assistance in acquiring income generating assets, subsidy etc. The beneficiaries will be protected with the insurance schemes that have reduced rates of premium and simple claims procedures.

#### **Rural Insurance Features**

- Sub-animals such as honeybees, livestock, property, planting and horticultural crops and persons may be insured under rural policies.
- The rural sector is defined as an area with a population of less than 5000. Furthermore, the population density in the area must be up to 400 per sq km only.
- At least 75 percent of the male working population should be involved in agriculture.
- A qualified veterinarian suggests an insured sum based on the market value of an animal.
- Scheme animal claims are settled for 100 percent of the sum insured.
- Non-schema animals and exotic animals have higher premium rates than scheme animals.
- Scheme animals include crossbred and indigenous animals.
- Long-term discounts and group discounts are offered.

#### **An Overview of Insurance Schemes of Government of India**

The Government of India provides insurance against income losses of vulnerable sections arising out of four major reasons

- i. Yield losses in agriculture (crop insurance),
- ii. Death and disability of an earning member of a family (life insurance and group accident insurance schemes),
- iii. Unforeseen health expenditure (e.g. Health insurance) and
- iv. Death of cattle, buffaloes and sheep (e.g. Livestock and sheep insurance).

#### **Insurance Marketing**

Marketing of Insurance Service to achieve increased customer orientation and generation of profit is called Insurance Marketing. Formulation of an ideal mix for insurance business is the main focus of Insurance marketing. The core and peripheral services can be improved by following an appropriate service mix. The marketing concept enables the insurance business to expand business in the best interest of society as well as the insurance organization.

### **Market Segmentation in the Insurance Organization**

Markets are segmented into different customer groups. Each product or services is tailored to match the needs of the customer group. The segmentation helps the insurance organization in dividing the market into small segments where the customer needs are identical. The following table illustrates market segmentation.

### **Market segmentation in Insurance Business**

Household sector	Salaried class, Self-employed, Retired employees
Industrial sector	Public sector and Private sector
Trade sector	Small business and Big business
Institutional sector	Universities, Colleges, Schools and Institutes
Region wise zone	Central zone, Eastern zone, Western zone, Northern zone and Southern zone
Rural sector	Gender Men/women, Age Kids, teens, Youth Grey

### **Significance of Segmentation to the Insurance Business**

1. Market segmentation is very important to an insurance organization. In insurance business, the prime focus is on the policyholder. Insurance marketing aims at transforming the prospects into policyholders. Market segmentation enables the insurance marketer to identify the level of expectations of the policyholders.
2. Insurance organizations capitalize on the available opportunities in market. They need to increase their market share constantly. Market segmentation in insurance business helps in informing, sensing and persuading the different segments where the potential users are available.
3. The insurance professionals can do business in all segments, such as rural and urban, men and women, agricultural or industrial and so on. Segmentation makes it possible to spread the insurance business even to the agricultural sector of the economy which is predominantly rural-based.
4. With market segmentation, the insurance organizations become aware the changing needs and requirements of the rural sector and shape their services accordingly.
5. Knowing and understanding the market is considered significant to the insurance professionals since the segmentation process helps them in scanning the changing needs and requirements of the rural sector.
6. A study of segmentation would help insurance professionals in formulating a sound marketing strategy. The product mix based on market segmentation would be competitive. All the prospects would have additional attraction in using the services.
7. The segmentation would help insurance professionals in making the promotional measures creative. It would be instrumental in sensitizing the prospects. The advertisement professionals would make advertisement appeals, messages and campaigns proactive to the receiving capacity of the target audience.
8. The pricing decision can also be rationalized and the weaker sections of the society would get substantial benefits. In view of the above, it is appropriate to say that segmentation is very important to insurance professionals. It transforms the prospects into users.

## 5.2 Insurance for Weaker Section of the Society

Under the provisions of Articles 32–B and 32–C of the Insurance Act of 1938, insurance companies are obliged to provide such business percentages as may be specified by the IRDA for persons in the rural or social sectors, workers in the unorganized or informal sector, economically vulnerable or backward classes of society and other categories of persons as may be specified by the Insurance Act. In accordance with the provisions of the above two sections of the Insurance Act, the IRDA has issued the (Obligations of Insurers to Rural or Social Sectors) Regulation of 2000, which stipulates that all insurers operating general insurance undertakings undertake business in the rural sector.

### Micro-Insurance- An Introduction

“Micro-insurance is considered by low premium and low coverage limits and sold as typical risk-pooling and marketing arrangements and designed for low income people and businesses not served by typical social or commercial insurance.”

“Micro insurance is the protection for the low -income population against specific dangers in exchange for regular payments of proportional premiums to the probability and costs of the involved risks”.

According to Churchill Micro-insurance is thus designed with the objective of protecting poor people and also designed with the environment that surrounds them, their needs, and possibilities. It is necessary that the product is developed for people ignored by traditional insurance markets. Insurance Regulatory and Development Authority (IRDA) has created a special category of insurance policies called micro-insurance policies to promote insurance coverage among economically vulnerable sections of society. The IRDA Micro insurance Regulations, 2005 defines and enables micro-insurance.

The Government of India provides insurance against income losses of vulnerable sections arising out of four major reasons

- i. Yield losses in agriculture (crop insurance),
- ii. Death and disability of an earning member of a family (life insurance and group accident insurance schemes),
- iii. Unforeseen health expenditure (e.g. Health insurance) and (iv) death of cattle, buffaloes and sheep (e.g. Livestock and sheep insurance).

### Health Insurance for BPL Population

The most widely discussed Government supported health insurance scheme for BPL population is the Rashtriya Swasthya Bima Yojana (RSBY) initiated in 2007. This scheme was initiated in addition to the Universal Health Insurance Scheme (UHS) for the BPL population, which existed in the country since 2003. At present, Gol supports both the RSBY and the UHS. The RashtriyaSwasthyaBimaYojana provides insurance coverage for certain hospitalization expenses and daycare procedures to the BPL population. Under this scheme a BPL family can avail free hospitalization care uptoRs. 30,000 per annum in selected private and public health facilities. A maximum of five members of a family can be covered under the scheme on a floater basis. Of Rs. 30,000, Rs. 1000 per annum (a maximum of Rs. 100 per visit) can be used for meeting transportation costs under the scheme. The scheme is implemented by insurance companies selected through bids at the State level. The number of BPL families covered under the scheme would be on the basis of Planning Commission estimates. The

eligible BPL families are identified by the State Government and the list conveyed to the selected insurance Final Report 31 companies for enrollment. The eligible BPL families are provided with a smart card by the insurance company, using which cashless treatment can be availed at selected health facilities. Security Fund was created in 1988-89 with contributions of both LIC and Government of India to support the provisioning of insurance to the 'weaker and vulnerable sections' of the society. At present, forty five occupational groups are identified to be eligible for insurance support from this fund. Besides, in most schemes initiated by Government of India, financial support is provided by the Centre alone. In a few schemes, notably the ones in which the extent of public financial support is relatively high, the financial burden is shared by the Centre and the States.

Some 82 percent of India's 168 million rural households depend on agriculture for their livelihoods. For the 117 million poorer households with small land holdings, it is particularly difficult to cope with any financial losses if such risks occur, such as poor harvests or a fall in market prices for their agricultural products. However, the majority of rural households and small-scale farmers do not have access to adequate insurance products or other services to reduce their risks and enable them to market their produce profitably.

The Government of India has also initiated the Family Welfare Linked Health Insurance Scheme in 2005 to provide insurance cover against death and complications arising from sterilization procedure. The scheme was introduced as a modified version of the earlier scheme of paying ex-gratia to persons facing death or complications following the sterilization procedure. In the revised family welfare linked health insurance scheme introduced in 2005, a compensation of Rs. 2 lakhs is paid in case of death in hospital or seven days from the date of discharge from hospital following a sterilization procedure. In case of death following sterilization within 8 days to 30 days from the date of discharge from the hospital, a compensation of Rs. 50,000 is paid. In the event of failure of sterilization a person is provided compensation of Rs. 30,000 and for complications arising out of sterilization within 60 days of discharge, a maximum compensation of Rs. 25,000 is paid. Additionally, an indemnity upto Rs. 2 lakhs is paid per doctor or facility for at most four cases a year. The scheme is being implemented by ICICI Lombard at present. The premium paid by Government of India to ICICI Lombard is based on the expected number of sterilizations in a year. For the year 2010, premium per person (without service tax) for the scheme was Rs. 26 with an estimated 50 lakh sterilizations to be conducted in that year.

The Indian agricultural sector still depended mainly on monsoons. The erratic and uneven distribution of monsoon rain has perpetuated yield / price volatility and hence farmers are exposed to risk and uncertainty. In this scenario of high risk and uncertainty in rain fed agriculture, the allocation of risk is an important aspect of farmers' decision-making. This indicates the need for contingent plans that will help improve the handling of risky outcomes among individuals. The design and implementation of contingent contracts is therefore an integral part of the development process in the Indian agricultural sector.

In India, traditionally, risk would be managed either privately or through implicit family or network contracts (caste groups / extended families / joint families). Such contracts can be very useful for handling non-covariant risks. However, yield risks are often locally covariant, which means that these traditional contracts within the village and families would not be good for insurance against. If the



benefits of reduced risk exposure from such crop diversification are large, farmers may be willing to forget some of the potential gains from trade / specialization; that is, they would diversify crops rather than specialize in activities in which they have a comparative advantage. This strategy may seem optimal from an individual point of view, but it can undermine a nation's competitive advantage through specialization that hinders national development. Productivity labor is likely to increase under specialization.

Furthermore, agricultural research could focus on fewer products and thus increase their efficiency in the development of new technologies. In addition, transport costs and other market transaction costs would be reduced, thereby stimulating trade and increasing trade gains. This regional specialization helps to develop the infrastructure relating to the production activity. By reducing the need for agricultural diversification, these contracts can stimulate specialization. The specialization in competitively advantageous crops / products by regions will increase the efficiency of farms and help to easily implement research and development and other crop-based government programs through economies of scale. The specialization helps to develop off-farm and non-farm employment opportunities for a large section of the rural population. Therefore, a development policy that includes explicit insurance arrangements for both farm and non - farm activities / workers helps the country's economic development through specialization and also helps farmers / non - farm workers to increase / stabilize their incomes.

### **Opportunities and Future Developments in Rural Insurance Scheme for Weaker Section of the Society**

1. Joint Product and Process design by Insurance Companies and Micro Finance Institutions (MFIS) and other rural intermediaries MFIs and other rural intermediaries have the unique advantage of access to the doorstep of the rural customer. In this process, they not only have a good opportunity to capture the customer requirements but also a grasp of the process issues involved in taking these products to the doorstep.
2. **Partnership between Life and General Insurance Companies**  
While the regulator does not allow the same company to offer both life and general insurance products, it is not convenient for the rural customer to approach different companies for different insurance products. Therefore, it is necessary that different companies collaborate to offer complementary risk mitigation services. MFIs and other rural intermediaries can be the channel to offer these services so that the rural customer can get all his services from a single point.
3. **Orientation for Smaller Pilots**  
The public institutions in the country have shown a tendency to go for large scale launches of social/rural insurance products, with huge budgets, for products and concepts that have not been tested rigorously earlier. A case in point would be the Universal Health Insurance launched by the government. Sometimes the magnitude of scale and social good intended, rob away the attention required to fine-tune the process requirements, for the success of such products. While such large scale projects do offer their own set of insights, it would also be useful if apex public institutions in the country can show an appetite for smaller pilots with low budgets, where complete attentions can be paid to design and fine tune processes so that they can be scaled up successfully.

#### **4. Resource Support to Grass-Root Organization to Pilot Innovative Insurance Products**

Gross-root organizations are in a good position to conceive and pilot various rural insurance products. But the cost of testing new concepts is beyond the financial capacity of most such organizations, As the benefits of such experiments will be a learning resource for the entire sector, there is an opportunity for collaboration so that the resource requirements for testing new products and concepts can be adequately met.

#### **5. Sharing of learning and experience among MFIs**

Today many MFIs are actively engaged in delivering insurance services to their customers in collaboration with various insurance companies. As the customer profile of all these MFIs is similar, sharing of experience between the various MFIs and Insurance Companies on their rural insurance products would help to spread the benefits of more number of rural customers.

#### **6. Data Bank Development**

As data on rural insurance experience is still very marginal, there is a need for sharing and achieving data on experiences in rural sector, which will contribute to the development of better-designed products in the future. The regulator could play an active role in setting up such an entity, which will maintain all such data, which is accessible to institutions involved in design of rural products.

#### **7. Starting Micro Insurance Companies**

The rural customer segment, its location and its requirements are significantly different from that of the urban market, The regulator can look at providing the right regulatory environment where micro-insurance companies can be set up with complete focus on meeting the insurance needs of the rural sector. The investments in such companies can come from insurance companies, MFIs and other competent entities which will bring the respective domain expertise required for delivering rural insurance.

### **Concepts of Personal selling in Insurance**

Among the various promotional strategies, personal selling occupies a place of outstanding significance. This is due to the fact that the insurance business is substantially influenced by the instrumentality of insurance agents and the rural career agents. If they are aware of the art of informing, sensing and persuading the potential policyholders, the task of insurance companies is simplified considerably. It is well known that personal selling is based on the excellence of an individual. This focuses our attention on the ability of an individual to influence the impulse by activating the persuasion process. This makes it significant that the insurance agents as well as the rural career agents have certain outstanding properties or attributes such as patience, communicative ability, attractive personality and commitment to the profession.

The insurance business cannot exist if the agents stop working. Hence, the insurance companies are supposed to assign due weightage to the excellence in an individual who is assigned this responsibility. They need to provide due incentives to the insurance agents so that they work satisfactorily and keep on moving the process of informing and persuading the policyholders/prospects. While recruiting agents, the insurance professionals need to be careful, so that persons with high communicative ability and attractive physique and everlasting patience are assigned the responsibility of acting as an agent. The branch managers bear the responsibility of managing and developing the agents by monitoring their contributions in the process of increasing the insurance business. Branch Managers are supposed to organize refresher courses to develop the agents so that the emerging trends in the investment potentials of a command area vis-a-vis the changing levels of

expectations of the policyholders/prospects and transmitted to them in a right fashion and on time.

### Steps in Personal Selling or Selling Processes

Every successful sale needs well defined steps. An insurance sales representative or an agent is required to adopt the steps given in the following Figure to complete the selling process



Figure 5.1 Steps in Personal Selling or Selling Process

## 5.3 Major Types of Insurance Schemes in the Rural Context

### Crop Insurance Schemes

In this category, two insurance schemes are supported by the Government of India the National Agricultural Insurance Scheme (NAIS) and the Weather Based Crop Insurance Scheme (WBCIS). While NAIS is the main scheme implemented across the country, WBCIS is pilot-based in selected states. NAIS is implemented exclusively by Agriculture Insurance Company of India (AIC), whereas WBCIS is implemented jointly by AIC and two private insurance companies, i.e. ICICI Lombard and IFFCO Tokyo General Insurance. Both schemes are administered by the Ministry of Agriculture.

### National Agricultural Insurance Scheme (NAIS)

The National Agricultural Insurance Scheme (NAIS) was initiated in 1999-00, by redesigning an existing insurance scheme called the Comprehensive Crop Insurance Scheme of India (CCIS), which has been operating in the country since 1985. NAIS provides insurance cover for the loss of yields of food crops, oilseeds and annual commercial / horticultural crops due to natural disasters, pests and diseases. The scheme is available to all countries in the country. The States, however, have the option of choosing whether or not to participate in the scheme and decide on the crops and areas covered by the insurance. The scheme is mandatory for all farmers.

### Objectives

- In the event of failure of any of the notified crop, provide insurance coverage and financial support to the farmers as a result of natural calamities, pest and diseases.
- To encourage farmers to adopt progressive farming practices, high value in-puts and higher technology in Agriculture.
- To help, stabilize farm incomes, particularly in disaster years.

### **Main Features of NAIS**

- Farmers Covered Tools or instruments or
- Any personal accident contract they can be on an individual or group basis
- A life micro-insurance product is
- A term insurance contract with or without return of premium
- Any endowment insurance contract or
- A health insurance contract

They can be with or without an accident benefit rider and Either on an individual or group basis

There is flexibility in the regulations for insurers to offer composite covers or package products that include life and general insurance covers together Intermediaries

Micro- insurance business is done through the following intermediaries

- Non-Government Organizations
- Self-Help Groups
- Micro-Finance Institutions

### **Weather Based Crop Insurance Scheme (WBCIS)**

The Weather Based Crop Insurance Scheme (WBCIS) was introduced by the Government of India in 2007-08 on a pilot basis in selected areas of a few countries. The introduction of WBCIS was based on the fact that a similar scheme piloted by the Indian Agriculture Insurance Company (AIC) since 2004 was argued to have distinct advantages over NAIS. Unlike NAIS, in which the compensation is based on a deviation in yield from the threshold yield, WBCIS is based on a deviation of weather parameters (such as rainfall, humidity, frost and temperature) from the desired value over a period in the insurance.

WBCIS is pilot-based, and the number of participating States varies from season to season. In 2009-10, the scheme covered approximately 30 crops in 13 States during the Kharif and 11 during the Rabi season. In areas and crops where WBCIS is implemented, NAIS is not available to farmers. Participation is also com, as in NAIS, for areas and crops for which the scheme is implemented.

### **Life and Group Accident Insurance Schemes**

The Government of India supports two kinds of insurance schemes against death and disability of workers in specific occupational groups life insurance schemes operated through the Life Insurance Corporation of India (LIC) and Group Accident Insurance Schemes operated by other GICs. The former covers insurance against death and disability due to natural causes in addition to those due to accidents covered in the later. Additionally, the Government of India also extends life insurance support to rural landless households.

### **Life Insurance Schemes for Specific Occupational Groups and Rural Landless Households**

Six occupational groups are supported by the Government of India through a direct premium contribution to life insurance. These include handloom weavers, craftsmen, sheep breeders and power loom workers, khadi craftsmen and anganwadi workers. The Ministry of Textiles implements insurance schemes for the first four occupational groups, while the last two are implemented by the Ministry of Micro Small and Medium Industries and the Ministry of Women and Child Development, respectively.

Workers in the age group of 18 to 59 years, who are below the poverty line or are marginally above the poverty line, are eligible. The schemes operate under the JanashreeBimaYojana (JBY) of LIC and provide insurance cover against death and disability of the insured member. Additionally, scholarship benefits are provided to the children of the insured member.

#### **Group Accident Insurance Schemes**

- Two group accident insurance schemes are supported by Government of India
- The Coir Workers Group Personal Accident scheme and The Group Accident Insurance Scheme for Active Fishermen. The Coir Workers Group Personal Accident Insurance Scheme in its present form was introduced by Government of India in 2005. Although the scheme was initiated in 1998, the scheme has been substantially revised in 2005 with increased benefits to provide insurance coverage against accidental death and disability of coir workers. At present, the scheme is implemented by the coir board (under the Ministry of Micro, Small and Medium Industries) and operated through the ed India Insurance Company Ltd. The scheme is universal in nature and covers 4 lakh coir workers across India. Any coir worker ' who is employed for wages to do any work in connection with the various processes in coir industry and who gets his wages directly or indirectly from the employer or through a contractor or through an agent and depends mainly on coir industry for his livelihood' is eligible to be covered under the scheme.

#### **Health Insurance Schemes**

Four health insurance schemes are supported by Government of India, two for specific occupational groups and two for the BPL population as a whole. For occupational groups, the Government supports Health Insurance Scheme for Handloom Weavers Final Report 29 and the Rajiv Gandhi Shilpi Swasthya Yojana for handicraft artisans. For BPL population, the Rashtriya Swasthya Bima Yojana (RSBY) and Universal Health Insurance Scheme (UHS) are supported by Government of India (GoI). Schemes for occupational groups are operated by ICICI Lombard, UHS is operated by the four public sector insurance companies and RSBY by both private and public sector insurance companies across the country.

#### **Health Insurance Schemes for Handloom Weavers and Handicraft Artisans**

The health insurance scheme for handloom weavers was introduced by the Government of India in the year 2005-06 but was subsequently subsumed under the Handloom Weavers Comprehensive Welfare Scheme (HWCWS) in 2007-08. Similarly, the health insurance scheme for handicraft artisans called the Rajiv Gandhi Shilpi Swasthya Yojana initiated in 2006-07, was subsumed under the Handicraft Artisans Comprehensive Welfare Scheme (HACWS) in 2007-08. Although subsumed under umbrella schemes, these schemes continue to operate as individual components under the larger schemes. The schemes are operated by ICICI Lombard and administered by the Ministry of Textiles. The health insurance schemes provide insurance coverage for health expenditure of handloom weavers and handicraft artisans in the country. Under the schemes, four members of a weaver's/artisan's family (in the age group of 1 day to 80 years) are covered the weaver/artisan, his/her spouse and two children. For handicraft artisans, apart from the artisan, any three members can be chosen among spouse, children and dependents. The scheme covers both pre-existing and new diseases with a maximum overall coverage of Rs. 15,000 per year, of which uptoRs. 7500 can be used for outpatient treatment.

### **Livestock and Sheep Insurance**

Government of India (GOI) initiated two schemes to provide insurance to cattle rearers and sheep breeders against income losses due to death of sheep and cattle the livestock insurance scheme and the sheep insurance scheme. The livestock insurance scheme was introduced by the Government of India in 2005- 06 to provide insurance to 'cattle rearers' against income losses due to death of crossbred and high yielding cattle and buffaloes. Under the scheme, an animal is insured at its market price and the beneficiary is compensated by that amount in the event of death of the animal. The scheme is implemented through one or more insurance agencies at the State-level, under the supervision of the State Livestock Development Board and State Department of Animal husbandry. The selection of insurance companies at the State-level is based on premium rates offered through bids and their ability and exposure in providing specific insurance services. While in most States a single insurance company is selected, multiple insurance agencies have been selected in some States for providing insurance services related to the scheme.

## **5.4 Various Special Rural Insurance Policies**

### **Aqua Culture Insurance**

This policy is intended for licensed farms or farms provided in harmony with the Government Notification for growing brackish water shrimp/fresh water prawns by adopting extensive/semi-intensive systems. This policy grants cover under the following two sections Section I Basic cover, which covers only fatalities due to natural calamities. Section II Comprehensive cover granting cover for disease also. Policy is generally given for a period of 4 Months. The basic cover provides compensation for total loss of shrimp/prawns due to Summer kill, pollution from external source, poisoning, riot, strike and malicious acts of third parties, terrorism, explosion/implosion, air craft and aerial devices or articles dropped there from, impact damage, earthquake, storm, tempest, cyclone, flood and inundation, volcanic eruption and other convulsions of nature. Comprehensive cover except to basic cover encompasses death due to diseases apart from those caused by bad management and nutritional deficiencies.

**Cattle Insurance** This policy is appropriate for the farmer-who owns the cattle and the banks/financial institutions which have financed the purchase of cattle under IDP/DRDA/DPAP schemes. "Cattle" refers to cows and Buffaloes, Stud Bulls, Bullocks, He Buffaloes, Calves and Heifers. The policy is generally given for a period of 12 months or for a long term of 3 to 5 years as per term of loan. The policy covers loss due to death, accident, illness or disease of the animal. A qualified veterinary officer's certificate is essential for accepting the proposal and also for fixing the value of the cattle that forms the basis for loss settlement.

**Failed Well Insurance** Wells, financed by Co-operative societies, financial institutions, banks and Government sponsored schemes may be covered under this policy, against the risk of low or no yield provided the selection of site is prepared on scientific principles and methods. The well sites situated in areas mapped by state geological departments having capability for borewells for yielding upto 1000 gallons 100 per hour are covered under this policy. Yield will be tested by pumping from time to time for 6 hours by a 2HP/3HP submersible pump. The well shall be deemed to be a total failure, if it yields below 500 gallons. If the yield is in between 500 to 1000 GPH, policy pays for the part the actual yield bears to assured yield.

**Farmer's Package Insurance** This policy is appropriate for the farmers who wish to cover all their property and assets under a single package policy. This policy can be issued both to individual farmers or a group. Personal effects, household goods, village/cottage industrial s belonging to the farmer are covered under this insurance

**Fish Insurance** This policy is devised for water fish rearers to cover stock of fry/fingerlings/fish/breeders. The policy covers total loss to the fish due to accident or disease during the period of insurance. The cover includes loss due to pollution, poisoning, malicious act by third parties, riot and strike. Partial loss of any kind is not covered. Flood and allied risks are covered as an addition on payment of extra premium. The policy can also be extended to cover the fish rearing pond, bunds, sluices etc. against fire and natural calamities on payment of additional premium. Policy is issued for the rearing period subject to a maximum period of 12 months from the date of stocking.

**Floriculture Insurance** Growers of commercial flowering plants such as rose, chrysanthemum and jasmine having enough agricultural expertise in the subject may take out this policy. This policy covers only plants even as growing in the farm/green house/poly-house against total loss or damage due to Fire including forest fire and bush fire Lightning Acts of terrorism riot and strike Storm, hailstorm, cyclone, flood and inundation Earthquake Impact damages by rail/road/air vehicles and animals.

**Lift Irrigation/Sprinkler Insurance** This policy is appropriate for the agriculturist using the lift irrigation or sprinkler installation for cultivation. This policy covers loss or damage to intake well, delivery chambers, jackwell, pumphouse, water storage tank, pipe lines, cables, starters and motors of the lift irrigation system or sprinkler installation arising out of , Fire and allied perils Flood, earthquake and land slide Accidental damage to machinery and pipe line Bursting of pipe lines Theft

**Plantation/Horticulture Insurance Suitability** This policy is appropriate for individual farmer-owner or tenant engaged in cultivation of horticulture trees or plantations or an association/organized and registered organization of farmers engaged in cultivation of specified crops. Also bodies procuring inputs, processing/marketing of the produce can take this policy.

**Poultry Insurance Suitability** This Policy is suitable for the poultry farmers, the beneficiaries of schemes sponsored by DRDA, DRAP, IRDP and financial institutions providing assistance to poultry s. The policy provides compensation for loss to birds dead due to accident (including fire, lightning, flood, cyclone, earthquake, riot, strike, and terrorist act); diseases contacted or occurring during the period of insurance.

### **Strategies Adopted by Insurance Companies**

Due to the norms stipulated by the IRDA, all the insurance companies looking towards rural market. For making insurance vulnerable to every nook and corner of the country, IRDA puts the rural obligations to be met by the companies over the years. The rural obligation of the new private insurance companies is 5 to 15% over the period of 5 years for Life insurance companies. For general insurance companies it is 2 to 5%. Penalty for not fulfilling this obligation is 5 lakh penal fees and up to 3 years of imprisonment to the Chief of the organization. Now the challenge for insurance companies is how to reach the rural people with the redesigned products and companies have been

successful to some extent by reaching the doorsteps of the rural people with the help of the non-conventional channels like co-operative banks, self-help groups (SHGs) ITCs e-choupal and regional rural banks. So there are various marketing strategies to tap the rural market of Rajasthan that are as follows Strategies Promotional Strategy and Quality Perception Tapping Unconventional Distribution Channel Cause Related Marketing De-tariffing in General Insurance Regulation Balancing Act

### **1. Promotional Strategy and Quality Perception**

It is the fact that well designed promotional strategy is very useful to promote insurance products effectively. As rural people in India always wanted value for money, with the changed view, insurers should notice difference in current market specially services provided by the company. Thus the orientation of insurance company should be in relation to consumer and target market needs, and the accordingly marketing strategies. So keeping in mind these all aspects, insurance companies are working on promotional strategies. Companies are now developing specific products to specific segment to cover the rural market. Customer requirement is on prime position for all the insurance companies. Scenario is not the same as before when customers have to take whatever LICs and GIC were forcing. But now the customers are the king and the products are redesigned according to the needs and their paying capacity. Now the companies are realizing the importance of proper communication in local area language for promoting their insurance products in rural market. As a large no. of people do not understand other language than their own mother tongue and it is the fact that when rural people are not getting what insurance agent is trying to make them understand, then product will not work, besides its quality and good services. For promoting the insurance products traditional as well as the modern media used for marketing in rural areas. The traditional media includes folk, theatres, melas and puppetry etc. whereas modern media includes radio, television and e-choupal etc. For example LIC uses puppets to aware rural public for its insurance products.

### **2. Tapping Unconventional Distribution Channel**

All the insurance companies heavily depend upon their agents to reach the rural customers. Now they are also trying other distribution channels like corporate agencies and banks in addition to agent force. Insurance companies are tying up with local area banks and co-operative societies to distribute rural insurance products. Many insurance companies are now trying for cross-selling, which is very fruitful in tapping the rural market towards insurance. Insurance companies are tying up with their parent company for using their network.

### **3. Cause Related Marketing**

Presently this concept is gaining popularity in insurance market. By creating goodwill for the company, insurers are trying to change negative attitude of the rural people towards insurance products. For example IFFCO-TOKIO was planning to launch a novel insurance policy for farmers in which for purchase of 50kg.bag of fertilizers, company will provide insurance worth Rs. 4000 to the farmers. This policy will remain in force for a period of 12 months from the date of purchase. Some insurance companies adopted some villages and involved in improving the lives of the rural people.

### **4. De-tariffing in General Insurance**

By fixing a tariff for any product, Tariff Advisory Committee (TAC) makes sure that the companies do not go for underpricing to gain market share. IRDA is now working on tariffing of the general



insurance sector. Government is giving obligation to the private insurance companies in rural segment.

## **5. Regulation**

Balancing Act IRDA has provided for a tie-up between life insurance and a non-life insurance company for distribution of rural insurance products. This will help in the reduction of the distribution cost and insuring poor people in a single stroke. Now besides insurance agents NGO, SHG MFI (Micro-Finance Institutions) of reputed organization can also become insurance agents in poor pocket of Rajasthan. Rate of commission is also revised by the companies to sustain the interest of the agents; commission is based on premium amount throughout the term of the policy, so it would help agent interested in renewal of policies and thus keeping the target customers insured against the risks. Besides these all strategies adopted by insurance companies, it is also true that yet there is a lack of appropriately designed insurance products which can fulfill the particular needs of the rural poor people of Rajasthan. For example agriculture insurance schemes i.e. pump sets, agriculture implements, crop insurance etc. have not still proved very popular in Rajasthan and Government sponsored NAIS for crop insurance has not proved very feasible as Rajasthan comes in drought zone. Agriculture Insurance Company of India is having good product then too due to delivery mechanism it was lacking behind. Later company have worked on it and tried to rectify this problem. It is the fact that rural customers are having an impression that premium paid is much higher than the benefits provided by insurance companies. Although efforts are done by private insurance company in this regard to target NGOs as promoters of rural insurance business, as they act an effective delivery channel. With increase awareness level about insurance products, good promotional strategies, and distribution channel, delivery mechanism, and better services, day is not far off when all insurable population in the Rajasthan would have been insured.

### **General Insurance in India**

Health insurance in India is a growing segment of India's economy. In 2011, 3.9% of India's gross domestic product was spent in the health sector. According to the World Health Organization (WHO), this is among the lowest of the BRICS (Brazil, Russia, India, China, and South Africa) economies. Policies are available that offer both individual and family cover. Out of this 3.9%, health insurance accounts for 5-10% of expenditure, employers account for around 9% while personal expenditure amounts to an astounding 82%. In the year 2016, the NSSO released the report "Key Indicators of Social Consumption in India Health" based on its 71st round of surveys. The survey carried out in the year 2014 found out that, more than 80% of Indians are not covered under any health insurance plan, and only 18% (government funded 12%) of the urban population and 14% (government funded 13%) of the rural population was covered under any form of health insurance.

### **Genetic**

The positive health advocated by WHO implies that a person should be able to express as completely as possible the potentialities of his genetic heritage. The genetic makeup of each individual is unique and cannot be altered after conception. The genetic constitution determines the health status to a great extent. It is may be due to this reason that there are specific exclusions with respect to congenital illness (both internal and external) in most of the health insurance policy. Now, the question arises if the health insurance firms should be allowed to exclude any genetic conditions in a person or not? The answer is not an easy one and one need to examine this on a case to case basis

and in lack of any specific regulations the decision becomes more difficult.

### **Environmental**

Environment may be internal or external. Internal environment is dealt with by internal medicine. The external environment involves all that is external to the individual. The external environment factors range from housing, water supply, family structure and occupation. In health insurance the internal environment is covered quite fairly. The only clause is that of hospitalization i.e. the insured need to be hospitalized for a minimum of twenty four hours. However, there are few exceptions where day care surgeries are covered due to advancement in medical technology.

### **Socio-cultural**

Social interactions with parents, peer groups, friends and siblings are through school and mass media affects the life-style of individuals. Personal habits like smoking, alcohol intake, drug abuse are developed through social interactions. Obesity, drug addictions are few examples of medical problems resulting from social causes. Life style can have a positive effect on health. Reduction of smoking, avoiding red meat, regular exercise all contribute to a healthy life style. In health insurance underwriting all these factors are kept in mind to measure the potential risk of health and based on the life style of the individual necessary discounts or loading is done in the base premium. Now a day's one can find that most of the health insurer are focusing on the lifestyle of the customers and trying to bring positive health outcomes by extending memberships to health clubs and exercise centers.

### **Economic**

Economic performance is the major factor in reducing morbidity, increasing and improving life expectancy. Economic status determines the purchasing power, quality of life, family size and disease pattern. It is one of the crucial factors which determine which determine health seeking behavior. We have seen in India how the central and state governments fund the health insurance schemes for the poor who does not have the purchasing power.

### **Health Services**

The health services must be equitably distributed, affordable and socially acceptable. The health services can be offered at the primary, secondary and tertiary level. It can also be bifurcated in terms of public and private space. From health insurance perspective it is important to ensure that there is synergy between the offering of the public and the private healthcare providers i.e. in places where there is no public infrastructure; health insurance can be used as a mechanism to deploy funds for the development of private health care services. This could be practically seen in districts where RSBY policy has been launched.

### **Political System**

The percentage of Gross National Product (GNP) spent on health is a quantitative indicator of political commitment. To achieve the goal of health for all, WHO has set the target of at least 5 percent expenditure of each country's GNP on health care. India spends 3 percent of its GNP on health care. In addition to this it is the political system which decides the investment of funds by the foreign players into insurance sector. Currently, the FDI cap is of 26 percent in any insurance company. However, the bill to raise the FDI limit to 49 percent is on its way and should be passed given the current diplomatic pressures from the developed countries like US.

## **Technological advancements**

There are many who suggest that improvement in technology has led to better health care outcomes. Whether, the health care cost has risen or not due to technological advancement is not clearly known. In health insurance this determinant is used to extend benefits to the customer by covering day care treatments i.e. medical treatment and or surgical procedure which is undertaken under general or local anesthesia in a hospital or a day care center in less than 24 hours because of technological advancement.

## **5.5 Rural Development – Recent Government Schemes and Challenges in Rural Insurance**

Different ministries of the government of India formulate various development schemes not to raise the profit but to maximise the welfare of the people. Some schemes like National Rural Livelihood Mission, MGNREGA, Bharat Nirman etc. are made by the government for rural development of India. Some important facts related to the various rural development schemes are mentioned below for the aspirants of some prestigious exams like IAS/PCS/SSC/CDS/Banking etc.

### **1. Deen Dayal Upadhyay Grameen Kaushal Yojna**

1. This is a placement linked skill development scheme for rural poor youth.
2. It was launched by on 25 September 2014 by Union Ministers Nitin Gadkari and Venkaiah Naidu on the occasion of 98th birth anniversary of Pandit Deen Dayal Upadhyaya. III. It aims to target youth, under the age group of 15–35 years.
3. A total of 52000 candidates have been skilled under this programme till 2014-15.

### **2. Roshni - Skill Development Scheme for Tribals**

1. The Ministry of Rural Development on 7 June 2013 launched a new skill development scheme designed to offer employment to tribal youth in 24 Naxal -affected districts.
2. The scheme, which is named Roshni is supposed to provide training and employment to an anticipated 50000 youth in the 10-35 years age group, for a period of three years.
3. As per the Ministry 50 per cent of the beneficiaries of the scheme will be women only.
4. The scheme is designed in light of the Himayat project model, which was launched in Jammu and Kashmir has been implemented in Sukma, Chhattisgarh, and West Singhbhum, Jharkhand, on a pilot basis over the last 18 months.

### **3. Swachh Bharat Mission**

1. The Prime Minister launched Swachh Bharat Mission on the birth anniversary of Mahatma Gandhi on 2nd October, 2014.
2. The concept of Swachh Bharat Abhiyan is to pave access for every person to sanitation facilities including toilets, solid and liquid waste disposal systems, village cleanliness and safe and adequate drinking water supply.
3. The programme is to be implemented by Ministry of Drinking Water and Sanitation.
4. An action plan has been drawn up for Swachh Bharat to become a reality by 2019, the 150th birth anniversary of Mahatma Gandhi.
5. The Mission aims to triple the growth percentage of toilet from present 3% to 10% by 2019.

### **4. Sansad Adarsh Gram Yojna**

1. This programme was launched by the Prime Minister Narendra Modi on the birth anniversary of Lok Nayak Jai Prakash Narayan on 11 October 2014.
2. Ministry of Rural Development will be the supervising authority for this programme.
3. Under this programme each Member of Parliament will take the responsibility for

developing physical and institutional infrastructure in three villages by 2019.

#### **5. Heritage Development and Augmentation Yojna (HRIDAY)**

1. This scheme was launched on the 21 January 2015 under the care of The Union Ministry of Urban Development.
2. Its aim is to preserve and rejuvenate the rich cultural heritage of the country.
3. In the initial phase of HRIDAY, 12 heritage cities have been identified which will be rejuvenated and developed. Union Government will provide 500 crore rupees to these 12 cities.

#### **6. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)**

1. National Rural Employment Guarantee Act 2005, was launched on the 2nd Feb.2006. Now the new name of this scheme is "Mahatma Gandhi National Rural Employment Guarantee Act" (or, MGNREGA).
2. This scheme is an Indian labour law and social security measure that aims to provide 'right to work' to the people falling Below Poverty Line.
3. It guarantees 100 days employment in a year to the village people.
4. Fifty percent workers should be women.
5. Its 90% funding is borne by the central government and 10% by the state government.

#### **7. National Rural Livelihood Mission**

1. This scheme was restructured from the Swarn Jayanti Gram SwarajYojna in 2011.
2. National Rural Livelihoods Mission (Aajeevika) is aimed to empower the women's self-help group model across the country.
3. Under this scheme govt. provides loan up to 3 lakh rupee at the rate of 7% which could be lowered to 4% on the timely repayment.

#### **8. Pradhan Mantri Gram SadakYojna**

1. Initially it was 100% centrally funded scheme, launched on the December 25, 2000.
2. After the recommendation of 14th finance commission report now expenditure will be shared by the centre and state at ratio of 60:40.
3. The main aim of this scheme is to provide all weather road connectivity to the rural areas whose population is more than 500 persons and in terms of hilly areas it is 250 persons.
4. This scheme is launched by the Ministry of Rural Development.

#### **9. Training to Rural Youth for Self-Employment (TRYSEM)**

1. This centrally sponsored programme was started on August 15, 1979.
2. The main target of this scheme was to provide technical and business expertise to rural BPL people who are in the age group of 18-35.
3. This programme has been merged with Swarn Jayanti Gram SwarajYojna on April 1, 1999.

#### **10. Antyodaya Anna Yojna (AAY)**

1. The scheme was launched by the Prime Minister Atal Bihari Bajpayi on the 25 December 2000.
2. The scheme provides food grains to around 2 cr. Below Poverty Line (BPL) families at a very subsidized rate.
3. Total 35 kgs of food grains is provided to a family. Rice is provided at the rate of Rs. 3/kg and wheat at

### **11. Village Grain Bank Scheme**

1. This scheme was implemented by the department of food and public distribution.
2. Main objective of this scheme is to provide safeguard against the starvation during the period of natural calamity or during lean season when the marginalized food insecure households do not have sufficient resources to purchase rations.
3. Under this scheme needy people will be able to borrow food grains from the village grain bank and return it when they have abundant food.

Features of Micro, Small and Medium Enterprises Development Act, 2006

### **12. National Rural Health Mission**

1. The National Rural Health Mission (NRHM), now under National Health Mission is initiated on 12 April, 2005.
2. Main aim of this plan is to provide accessible, affordable and accountable quality health services even to the poorest households in the remotest rural regions.
3. Accredited social health activists (ASHA) scheme is also operational under this scheme.
4. It is run by the ministry of health and family welfare.

### **13. AamAadmiBimaYojna**

1. It was launched on October 2, 2007.
2. It's a social security scheme for rural households.
3. Under this scheme one member of the family is covered.
4. The premium of Rs. 200 per person per annum is shared by the state and central government. V. The insured person need not to pay any premium if his/her age is between the 18 years to 59 years.

### **14. KutirJyoti Programme**

1. This programme was launched in 1988-89.
2. Its main motive was to improve the standard of living of schedule castes and schedule tribes including the rural families who live below the poverty line.
3. Under this programme, a government assistance of Rs. 400 is provided to the families who are living below the poverty line for single point electricity connections in their houses.

### **15. SarvaSikshaAbhiyan**

1. SSA has been operational since 2000-2001.
2. Its main aim is to make free and compulsory education to children between the ages of 6 to 14, a fundamental right.
3. This programme was pioneered by former Indian Prime Minister Atal Bihari Vajpayee.
4. Right to education is related to the 86th Amendment to the Constitution of India.
5. Currently its expenditure is shared by the centre and state into 50 50 ratios.

### **Challenges in Rural Insurance Business**

Although rural markets are great attraction to insurance companies, but it is not easy to enter the market and take a good share of the market in the short time due to various reasons

#### **1. Low Literacy Level**

As we are aware that literacy rate in rural area of Rajasthan is very low. Because of low literacy level, it is very difficult task for insurance agents to make it clear about benefits of insurance to the rural people.

## 2. Traditional Life

People in rural area are very much resistant to change, they are bound with customs and tradition thus unwillingness to purchase insurance policies.

## 3. Buying Decisions

Rural customers are very cautious in buying any product or services and their decision to buy insurance policy is slow and delayed.

## 4. Media for Promotion

Formal media is not much available in rural households; therefore there should be specific sales promotion activities in rural areas i.e. participating in melas or fairs.

## 5. Distribution

Although there is provision of micro office of insurance companies, then too it's not upto that level in Rajasthan and thus insurance is out of reach to the rural people.

## 6. Interest of Agents

For general insurance business in villages, agents are not much interested as they think that time spend in rural business is not as fruitful as compare to urban area. The reason behind it is low commission in rural policies.

## Summary

Government supported insurance schemes are a form of social security in India. These schemes are initiated by the Government to provide protection to certain sections of population against income losses. The need for public support for these schemes arises from the fact that risk adjusted premium rates are often unaffordable for the weaker sections of the population to which the schemes are targeted and the Government needs to step in to provide financial support to facilitate the provisioning of insurance for these sections of population. In India, a number of Government supported insurance schemes have been initiated over the last decade. A number of schemes that existed earlier have also been

modified substantially. While some of these changes have taken place at the State level, the most important changes, in particular some of the largest insurance schemes in terms of implementation across the country have been initiated by the Central government. Insurance schemes being implemented by the Central Government for the vulnerable sections of the society. It provides an overview of the nature of schemes and their basic features, analyzes aspects of their performance and the factors affecting them, highlights expenditure commitment of Government of India on these schemes, and discusses issues related to the design and implementation of these schemes.

## Useful links

- <https://www.irdai.gov.in/>
- [www.aicofindia.com](http://www.aicofindia.com)
- <http://www.fao.org/tempref/docrep/fao/005/x0475e/x0475e03.pdf>

## Model Questions

1. Examine the available schemes against weaker sections of the society.
2. Discuss the importance of rural insurance schemes and also state need of the rural insurance.
3. Critically examine the recent Government schemes in relevant with non-life insurance.

4. Discuss the marketing strategies in the rural insurance products by the insurance companies.
5. Enumerate the special insurance schemes against agricultural and allied agricultural products.

#### **To Do Activity**

1. Collect the information about rural insurance scheme through IRDA website
2. Get the information recent insurance schemes
3. Take any one rural insurance schemes and analyses the benefits and scope.

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# Block 3

## **RF3 Commodity Markets, Pricing and Derivatives**

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सत्यमेव जयते

**Mahatma Gandhi National Council of Rural Education**

Department of Higher Education

Ministry of Human Resource Development, Government of India

Hyderabad - 500004



Where there is Rural Wellbeing  
there is Universal Prosperity

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# Chapter 1 Role and Functions of Derivatives

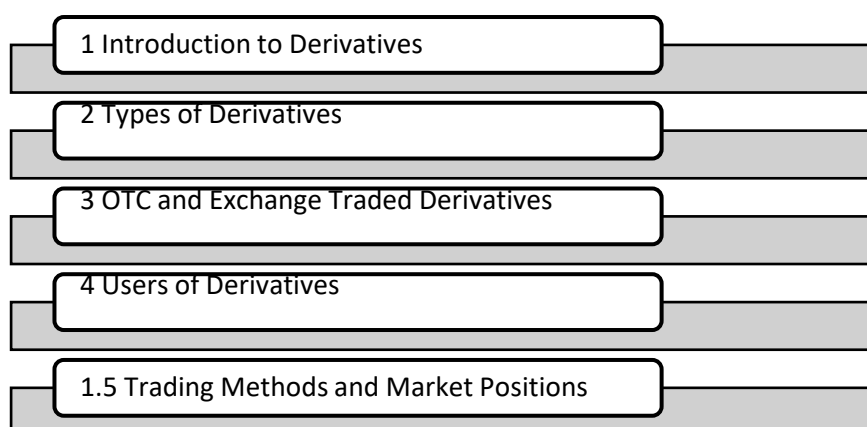
## Introduction

Derivatives is a fast-growing financial instrument that helps in mitigating or reducing price risk that attracts many investors in India. Increase in usage of derivatives day by day makes it an important one to learn about. To use derivatives and to earn profit, it is essential to know the basics of derivatives which is covered in this first Chapter.

## Objectives

- To introduce about derivatives, its evolution and uses.
- To explain the various derivative instruments.
- To elaborate the various types of markets dealing with derivatives.
- To describe the various users of derivatives.
- To brief about the various trading methods of derivatives and market position of traders.

## Structure



## 1.1 Introduction to Derivatives

Derivatives are the important financial instruments which gained importance in recent days. The increasing usage of derivatives makes it essential to know about it. The concept of 'Derivatives' is not as simple as it looks. A complete learning about derivatives is vital for proper usage of it. Thus, this focuses on the basic introduction to the concept of derivatives. The content to be covered in this are

- Concept of Risk
- Meaning of Derivatives
- How did Derivatives emerge?
- Evolution of Derivatives
- Uses of Derivatives
- Derivatives a Double Edged Sword

## Concept of Risk

A risk in general means the uncertainty in achieving the desired result. It is an unavoidable part of one's life or any economic activity. The risk of an investment includes the possibility of losing some or all of the original investment which can be simply said as the difference between the actual investment return than expected. The risk can be broadly classified into two, one being the Systematic risk which is under one's control and other being the Unsystematic risk which is not under one's control. In a financial context, these risks can be further classified into five major categories such as

- **Systematic Risk**
  - **Business Risk** the risk that arises when an entity starts a business without complete understanding of it.
  - **Operational Risk** the risk that arises out of weak operational control of an entity.
  - **Legal and Documentary Risk** the risk that arises out of null and void contracts or losses out of contractual commitment.
- **Unsystematic Risk**
  - **Market Risk** the risk that arises out of the change in the value of something due to the change in its market prices.
  - **Credit Risk** the risk that dues will never be repaid.

The market risk and credit risk are of high concern to most institutions, but they can be controlled or mitigated with proper instruments. Whereas, in reality, most terrible losses are caused by the business risk or operational risk which cannot be easily evaded. The market risk arises out of various market factor and hence, it can be further classified as

- **Interest Rate Risk** the risk that arises out of changes in the interest rate that affects the revenue of a company.
- **Inflation Risk** A company's revenue gets affected by the changing inflation which increases its costs leading to this risk.
- **Foreign Exchange Rate Risk** A company dealing with international market gets affected by the changes in exchange rates causing Foreign exchange rate risk. This risk can arise from broadly two sources
  - Transactional Foreign exchange risk arises out of the day today business activities, and
  - Translational Foreign exchange risk arises out of realizing asset and liability denominated in foreign currency into a company's domestic accounting currency.
- **Equity Risk** the risk that arises out of unfavorable equity prices. A company can face this risk in number of ways such as share buybacks, issue of sweat equity or equity investment of any other companies.
- **Liquidity Risk** it is the risk arising out of company's inability to meet its short term cash requirements.
- **Commodity Risk** the risk that arises out of uncertainties caused by fluctuations in prices and yields of commodities and the impact of these on the incomes of those who deal with such commodities.

- **Economic Risk** the risk that arises out of uncertainties caused by economic factors such as demand, supply and government policies.

To overcome these uncertainties, it is necessary to manage the risk. The process of identifying, analyzing and mitigating the uncertainty of an investment is termed as risk management. Inadequate/inefficient risk management can result in severe consequences for companies as well as for individuals. Risk can be managed in many ways such as by diversifying the lines of business, long term supply contracts, vertical integration and transferring the risk of risk averse to the risk seekers.

### **Meaning of Derivatives**

Derivatives are tools or instruments that can eliminate uncertainty and reduce market risks. They constitute an efficient and affordable means to transfer market risks from risk averse to risk seeker. Derivative can be defined as “a financial instrument whose value depends on (or derives from) the values of other, more basic, underlying variables very often the prices of traded assets” (Hull, 2006). It is also defined as “an instrument whose existence and value is contingent upon the existence of another instrument or security” (Niti Nandini Chatnani, 2011).

Derivatives are available on a wide variety of underlying assets. The most common and basic types of derivatives are Commodity derivatives and Financial derivatives. The difference between the two lies in the nature of their underlying assets. In the former, the underlying is a tangible commodity like wheat, cotton, soybean, crude oil, gold, silver, etc., whereas, in the latter, the underlying can be bonds, stocks, foreign exchange, etc. There are no quality issues in financial instruments while, in commodities, quality, warehousing, and delivery of the underlying are issues that need to be addressed. However, both the contracts are similar in principle, the methods of quoting prices, delivery and settlement terms vary according to the contract being traded.

### **How Derivatives Emerged?**

Agriculture, trade, and industry have uncertainties regarding future prices of raw materials, competition, market price, government policy, technological changes, etc. To overcome futures price risk, a contract can be made between the parties who suffer the price risk to fix up the future price. Derivatives initially emerged out of market risks that too mainly price risk and economic risk of agricultural commodities. The usage of derivatives dates back to Sumerians of ancient Mesopotamia. They used derivatives to trade for agricultural commodities and livestock. Agricultural commodities are seasonal, thereby leading to the risk of low price during the harvest season and no supply during the offseason. Similarly, in case of livestock, a buyer may not get the desired quantity of same variety of cattle and a seller may not get a fair price for his cattle. Hence, to bridge the gap between the demand and supply and to mitigate the price risk, the derivative instrument was used. Sumerians used clay tokens sealed in a pot as derivative contract and traded with it. Upon the agreed future date, buyer will give the agreed number of tokens along with the agreed money to the seller and get his goods and the seller will give the goods against the money and tokens. Later developments across the globe abolished the token system and brought the same written on paper and now in electronic form.

### **Evolution of Derivatives**

Derivatives had its roots with trading in agricultural commodities, such as rice trading in China, 6000 years ago. The first recorded derivatives contract can be traced back in chapter 11 of Aristotle’s book on ‘Politics’. While commenting about the strength of philosophers, he relates the story of a

philosopher Thales of Miletus in ancient Greece (624-547 BC), who during winter, negotiated oil presses for the olive harvest during the spring season by putting a deposit which allowed him exclusive use of the oil presses after the harvest. Thales was able to secure the contract at a very low price because the oil press owners were not sure about the future harvest. This was the first derivative contract which is similar to the options contract. The year 1848 is marked as the era of organized trading which arose with the need of guaranteed supply of agricultural commodities. Chicago began a chief commercial hub where the producers and dealers met in a common place to trade on wheat for cash. The futures trading came into existence when these traders started making commitments for future exchange of commodities. The Chicago Board of Trade (CBOT) was established in 1848 to regulate and supervise these contracts. Later in 1870 to 1880s, many exchanges in New York trading in Coffee, Cotton and other agricultural produces were started and in 1898, the Chicago Mercantile Exchange (CME) was found as the Chicago Butter and Egg Board. This was the first organized derivatives trading. The success of derivative instruments led it to be used with various underlying assets. The products offered on the derivatives market are Forward Rate Agreement, Commodity Derivatives, Currency Derivatives, Stock Market Derivatives, Credit Derivatives and, Weather Derivatives.

- **Forward Rate Agreements (FRA)** FRA are forward contracts on interest rates where two parties agree to exchange the difference between the market rate of interest on the effective date of the contract and the agreed fixed rate on the date of execution of the contract.
- **Commodity Derivatives** It is the derivative where the underlying asset is a commodity.
- **Currency Derivatives** it is one of the oldest derivatives markets in the world. The underlying asset of this derivative is foreign currency.
- **Stock Market Derivatives** the underlying asset is a stock or index traded in a stock exchange.
- **Credit Derivatives or Debt Derivatives** having credit as the underlying asset and the payoff depends on whether an event such as default or bankruptcy or natural disaster happens. Credit derivatives ensure that someone other than the lender absorbs the financial loss.
- **Weather Derivatives** the underlying asset is the weather condition such as carbon content and rainfall. This is the latest derivative product traded across the world as of now.

### Uses of Derivatives

Any financial instrument can be thought from two perspectives such as functional perspective and analytical perspective. Functional perspective includes who are the users of the instrument? And why they use it? Whereas the analytical perspective includes what is the outcome of the instrument? Similarly, a few important reasons for using derivatives are as follows

- Hedging or Risk management
  - Speculation
  - Reduced transaction costs
  - Regulatory arbitrage
  - Price Discovery
- 
- **Hedging or Risk Management**  
Derivatives are essentially used to mitigate risks. As said earlier, the price risk and economic risk can be better mitigated with derivatives. The world famous investor Warren Buffet himself has said derivatives as Weapons of Mass Destruction, which explains the importance of derivatives

as a risk management tool. For example, a farmer who suffers from the unfair price for his yield during the harvest can hedge his price risk by taking up a derivative contract against a trader who suffers from low supply during the offseason (commodity derivative). An investor who wants to buy shares but will get money in a future period can use derivative to hedge his future price risk (financial derivatives). Besides, being useful for hedging risk, derivatives can also be used to enhance productivity and to craft investment decisions more efficiently.

- **Speculation**

Though not the primary use, derivatives can also be used as an investment vehicle. The Derivative gives high leverage bets that can earn potential gain or loss. For example, an investor trading in stock which is currently traded at Rs. 550, can make a buy bet ranging between Rs. 400 to 800 over a period of three months using derivatives instead of immediate trading. Upon realization after three months, the derivatives can give him a gain if the price is bearish or a loss if the price is bullish.

- **Reduced Transaction Cost**

The transaction cost (cost incurred while buying or selling a security such as brokerage, etc.) of an investment is also considered while analyzing the exact gain or loss from that investment. Derivatives give an advantage of reducing this transaction cost. For instance An investor, who wishes to sell a stock and buy another stock has to incur the transaction cost for both the transactions which can be reduced by using derivative that will give the same end result of the original transaction.

- **Regulatory Arbitrage**

Regulatory arbitrage simply means the chance of earning while evading taxes and regulatory restrictions. Trading in derivative sometimes gives regulatory arbitrage to its buyer. A Derivative can be used to make a profit by avoiding the risk of physical holding of assets while maintaining its ownership. For example, an investor willing to sell his shares will lose ownership if he directly sells it in the market and the price risk may also exist. But, if he takes a derivative, he can gain more without losing the ownership. He can also defer taxes on the sale of shares increasing his earnings.

- **Price Discovery**

Price discovery is an important function and use of derivatives. Price discovery in general refers to the act of determining proper price for the commodities imbibing the market factors of commodity demand and supply and other factors. As the spot market reflects the present price positions of a commodity, the derivatives reflect the future price of a commodity being derivatives a future market. The price discovery function of derivatives helps the commodity trader to forecast and get prepared for his cost on commodity trading.

### **Derivative a Double-edged Sword**

A Derivative is an important risk management financial instrument but, it also has its own risk. It is not necessary that a risk management tool will be free of risk. When one commits to buy or sell a larger quantity by just paying a meager amount, it provides higher leverage to the asset that may lead to possible profit or loss making the Derivatives a double-edged sword. If the condition is favorable for the traders of derivatives it is good but the condition can also on the other side. Every investor concerns more about losses than profits, this threat makes many to stand averse of derivatives. For example, two parties enter into a derivative contract, one the buyer of the asset and another the seller of the asset. They enter into the contract by paying an initial amount. They have



fixed the quantity and price of the asset for a future period. Thus, the initial amount is the cost on both sides. If market price changes favourable to the buyer, his profit will be higher nullifying his cost, whereas for the seller who already has a cost and now the price is unfavourable, making his loss higher. The condition can be the other way also. Thus, derivatives give a higher profit or higher loss resulting in terming it as double edged sword. Derivative being an instrument whose value depends upon the value of the underlying asset is a threat. If the underlying asset itself is a derivative, then that will give rise to potential danger with complex and unpredictable payoffs. So, derivatives are to be used carefully and strategically.

Risk is an unavoidable part of one's life. Thus, it cannot be an exception for trading or investment. Mitigating the risk is an inevitable one for the traders or investors to gain or at least to retain their investment. A derivative is an important risk mitigating tool which derives its value from an underlying asset. The underlying asset can be share, commodity, currency, debt, interest rate and weather condition. Thus a derivative is mainly used as a risk management tool for hedging purpose. Apart from that derivative is also used for speculation, reduce transactional cost and to achieve regulatory arbitrage. Though the derivative appears to be a highly useful instrument it also has the risk. Compared to other financial instruments, the risk of a derivative instrument is huge due to its high leverage making it a double edged sword. Thus, derivative is to be used strategically to fulfill its purpose effectively.

## 1.2 Types of Derivatives

Derivative, in general, is a contract between parties used to overcome their future needs and risks. A similar derivative contract cannot fulfill the diverse needs of its users. Thus, to overcome this, derivatives are classified into different types. Based on the characteristics of the derivative contract, it is generally classified into four types Forwards, Futures, Options, and Swaps. Apart from these derivatives are also classified based on the market where it is traded, its trading system, its settlement procedure, its complexity, and its underlying asset. Each of these contracts has its own advantages and disadvantages and it is important to choose the appropriate derivative to accomplish the user's objective. Hence, this focuses on the types and classifications of derivatives so as to facilitate the readers to know about the different derivative instruments and select the appropriate derivative to fulfill their objective. This covers the basics of

- Forwards
- Futures
- Options
- Swaps
- Classifications of derivatives
  - By Market
  - By Trading System
  - By Settlement
  - By Complexity
  - By Underlying Asset

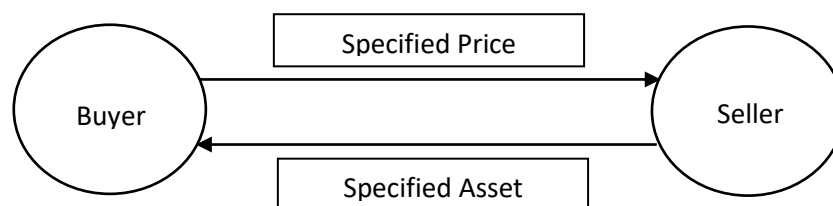
### Forwards

A forward contract is an agreement between two parties either to buy or sell an asset at a certain future time for an assured price. It is an unstandardized contract (i.e.,) the agreements are altered according to the parties needs and wants. Hence, it is usually traded in the Over the Counter (OTC)

market. It is necessary for the parties to know each other as the contract is built upon personal goodwill. Forwards are not regulated by any exchange hence they suffer from counterparty risk (i.e.,) the risk due to default of any party.

Example of a forward contract Mr. X is a farmer who has sown paddy which will be ready for harvest after three months. Mr. Y has a rice mill and is in need of paddy after three months. Mr. X has a risk to get a good price for his yield while Mr. Y has a risk to get paddy so as to continue his business without any break. As the two parties know each other, they make an agreement between them for trading paddy after three months at a mutually acceptable price, thereby mitigating their risk and satisfying their needs. After three months, Mr. X will deliver the accepted yield of paddy to Mr. Y against the money accepted by Mr. Y.

The Figure 1.1 gives an easy understanding of how a forward contract works.



**Figure 1.1 Forward Contract**

### **Futures**

Futures contract similar to the forward contract is an agreement between two parties to buy or sell an asset at a determined future time for a determined price. But, unlike forwards, futures are traded on exchanges where the exchanges impose certain standardized features in the contract. The parties willing to trade with futures have to abide by the standards specified by the exchanges such as quantity of the asset, quality of the asset, date of delivery and location of settlement. Being an exchange traded instrument, it is not necessary for the parties to know each other. The exchange guarantees the parties of the futures that the contract will be honored, hence, nullifying the counterparty risk (i.e.,) default of any party.

Example of a futures contract Mr. X is a farmer who has sown corn which will be ready for harvest after six months. Mr. Y has a corn flour mill and is in need of corn after six months. Both the parties are at different places hence, they don't know each other. They want to mitigate their future risks and so they enter into a six months corn futures contract with NCDEX (a national commodity exchange) as seller and buyer respectively for an agreed price today. After six months when the parties have to execute the contract, the exchange gives them two options,

- Either to settle the asset physical in exchange to cash,
- Or to settle the contract in cash. Where Mr. X will sell his corn yield and Mr. Y will buy corn in the local market for the prevailing price of the asset and settle the difference of prevailing price and agreed price in cash at the futures market. Thereby, getting the same benefit as the previous option. For example, Mr. X and Mr. Y has agreed to sell and buy corn respectively at Rs.11,000 per ton after three months. On the contract expiry day, the corn sells at Rs. 11,200 per ton in the spot market. Due to various reasons, the parties don't want to exchange corn for money, thus, they opt for cash settlement. Mr. X who has to sell corn at Rs.11,000 per ton through contract will now sell corn at Rs.11,200 per ton in the spot market and earn a profit of Rs.200 per ton. Similarly, Mr. Y who has to buy corn at Rs.11,000 per ton

through contract will now buy corn at Rs.11,200 per ton in the spot market and incur an additional cost of Rs.200 per ton. As per the cash settlement procedure, Mr. X has to pay his earning of Rs.200 per ton to Mr. Y to offset his additional cost of Rs.200 per ton, thereby the net cash position of both Mr. X and Mr. Y remains at Rs.11,000 as per the contract.

The physical settlement of futures contract resembles same as the working of forwards contract in Figure 1.1. The Figure 1.2 shows how cash settled futures contract works, as 98% of futures contracts are cash settled.



**Figure 1.2 Futures Contract**

### Forwards versus Futures

The forwards and futures have their own characteristics. The key differences between these two contracts are given below.

**Table 1.1 Forwards versus Futures Contract**

	<b>Forwards</b>	<b>Futures</b>
<b>Trading Place</b>	Forwards are contracts traded in over-the-counter market and not in an exchange	Futures are contracts traded in an exchange
<b>Relationship</b>	The buyer and seller know each other	The buyer and seller do not know each other
<b>Contract Specification</b>	Each contract specification differ from one another making them unique. Tailor made contracts.	All contracts are standardized with exchange designed specifications. Readymade contracts.
<b>Margin</b>	No margin is required as mutual goodwill lies as the basis for the contract.	A margin is compulsory and it acts as the good faith money.
<b>Counter Party risk</b>	The contract is negotiable between parties with no exercise guarantee leading to counterparty risk	It is compulsory to exercise the contract and is overseen by the clearinghouse nullifying the counterparty risk
<b>Usage</b>	Mainly used for hedging and price discovery	Mainly used for hedging and speculation
<b>Transparency</b>	Contracts are private deals hence, are not transparent	Contracts are exchange reported hence, are transparent
<b>Settlement</b>	Contracts are settled by physical delivery	Contracts are settled either by cash or physical delivery

### Options

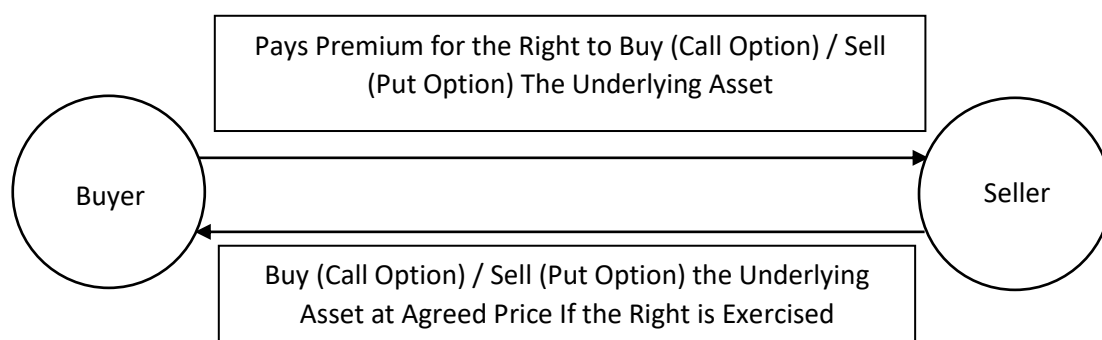
An options contract is an agreement similar to futures, but here the holder of the contract has the right without an obligation to execute the contract. Options are traded both in over the counter market and on exchanges. There are two types of options; Call option and Put option. The call option gives the holder the right to buy the underlying asset at a specified future date for a specified price, whereas, the put option gives the holder the right to sell the underlying asset at an agreed future

date for an agreed price. As the buyer of the contract has the right to exercise, the seller of the contract is always exposed to counter party risk. Hence, to minimize the seller's risk, the buyer has to pay the seller a premium for the right provided for the buyer.

Example of call options contract Mr. Y has a spinning mill who is in need of cotton (Kapas) after six months. He enters into a call option contract which provides him the right to buy but not the obligation to buy at an agreed price after six months against Mr. X, a farmer. Mr. Y pays a premium to Mr. X for providing him the right to buy which lies as a compulsory cost for Mr. Y. After six months, if the market price of cotton is more than the sum of agreed price and premium, Mr. Y will execute his right to buy cotton from Mr. X at the agreed price, as buying in futures market costs less than buying in the spot market. Similarly, if the market price of cotton is less than the sum of agreed price and premium, Mr. Y will not execute his right to buy cotton from Mr. X.

Example of put options contract Mr. X is a farmer who has planted cotton (Kapas) which will be ready for harvest after six months. He enters into a put options contract which provides him the right to sell but not the obligation at an accepted price after six months against Mr. Y, a spinning mill owner. Here, Mr. X pays a premium to Mr. Y for providing him the right to sell which lies as a compulsory cost for Mr. X. After six months, if the market price of cotton is more than the sum of agreed price and premium, Mr. X will not execute his right to sell cotton to Mr. Y at the agreed price, as selling in spot market gains more than selling in the futures market. Similarly, if the market price of cotton is less than the sum of agreed price and premium, Mr. X will execute his right to sell cotton to Mr. Y.

Thus, the buyer or holder of the options contract will exercise the contract only when it is favorable to him. The Figure 1.3 shows how an options contract works.



**Figure 1.3 Options Contract**

## Futures versus Options

The key differences between the futures and options contracts are given below.

**Table 1.2 Futures versus Options Contract**

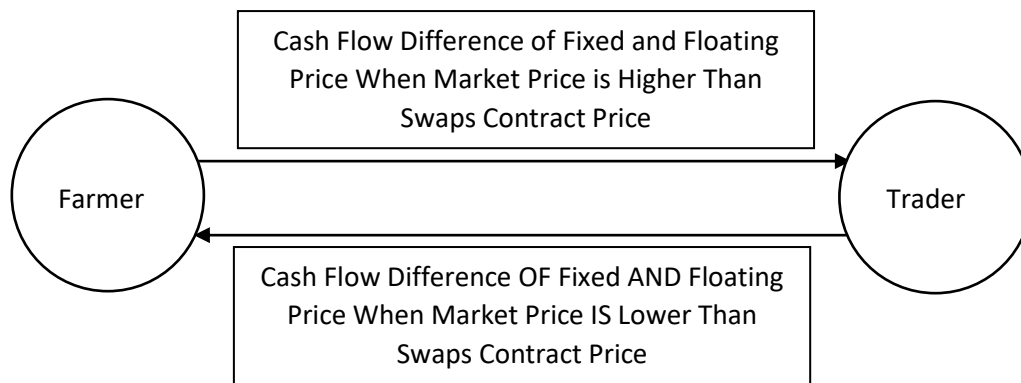
	<b>Futures</b>	<b>Options</b>
<b>Parties Right</b>	The buyer and seller of futures are obliged to fulfill the contract.	The buyer of the options has a right and not the obligation to execute the contract, whereas, the seller of the options is obliged to fulfill the contract at the buyers demand.
<b>Risk</b>	The buyer and seller are prone to unlimited risk of losing.	The seller is prone to unlimited risk of losing whereas, the buyer is prone to limited risk of losing.
<b>Return</b>	Futures give unlimited potential to gain for both the buyer and seller.	Options give limited gains for the seller and unlimited gains for the buyer.
<b>Price Determinants</b>	The value of the futures only depends upon the price of the underlying asset.	The value of the options not only depends upon the price of the underlying but also based on strike price (agreed price), time to maturity, implied volatility and riskfree interest rate.

## Swaps

Swaps contract is an agreement between parties who actually will not exchange any asset but agrees to exchange the cash flows of it (i.e.,) in a swaps contract there is no buyer or seller, both the parties are in need of some asset, thus, instead of exchanging the asset, the parties exchange it's cash flow. It is an Over the Counter (OTC) product as that of forwards. The swaps contract helps to protect the parties from credit losses (buying protection) or replicate credit exposures (selling protection) by exchanging the cash flows than exchanging the assets. Thus, swap provides a means to hedge a risky payment stream. There are various types of swaps depending upon the underlying asset, such as interest rate swaps, total return swaps, commodity swaps, and currency swaps.

Example of swaps contract Mr. A is a farmer of pepper who starts harvest from January and Mr. B is a commodity trader. Mr. A fears of the price risk during harvest season and contacts Mr. B for sales of pepper. Instead of taking the number of forwards or futures, they enter in a swaps contract wherein Mr. A agrees to sell certain quantity at a fixed price to Mr. B throughout the harvest season. In the harvest season, Mr. A sells the pepper at the local market for the prevailing spot price and exchanges the difference between the floating spot price and agreed fixed price resulting his net cash flow to be equal to the fixed price, thereby mitigating his price risk.

The Figure 1.4 shows the working of a swaps contract.



**Figure 1.4 Swaps Contract**

### Other Classifications of Derivatives

Forwards, futures, options, and swaps are the generic categories of derivatives based on the characteristics of the contract. Apart from these, derivatives can also be classified based on other criteria as under.

- **By Market**

Derivatives can be classified based on the market where it is traded as over the counter (otc) derivatives and exchange traded derivatives. The over the counter derivatives are simple unstandardized contracts traded by known parties, whereas, the exchange traded derivatives are standardized contracts traded on a centralized physical geographical place by unknown parties. Most of the derivatives product will emerge as otc derivatives and then will mature as exchange traded derivatives after standardization.

- **By Trading System**

Based on the trading system derivatives are classified as outcry traded derivatives and electronic traded derivatives. Both these derivatives are exchange traded. In an outcry method traded derivatives, the traders meet at the exchange and communicate their orders face-to-face verbally. In an electronic method traded derivatives, the traders place their orders over the internet from their own place. In the current technological world, most of the derivatives are electronic traded derivatives.

- **By Settlement**

Based on the settlement, derivatives are classified as physical settled and cash settled. Physically settled derivatives mean there is a physical exchange of underlying at the expiry of the derivatives instrument. Cash settled derivatives means the derivatives contract is settled by payment of money rather than the physical exchange of underlying asset. Most of the derivatives contracts are cash settled as it is hard for the traders to accomplish all the contract specification.

- **By Complexity**

Based on the complexity, derivatives are classified as vanilla and exotic derivatives. Vanilla contracts are standardized and straightforward derivatives whereas, the exotic derivatives contracts are unstandardized and usually complex. In a vanilla contract, the derivative user will be aware of the risk whereas, in an exotic contract there will be more hidden risk which the user will be unaware of making it a complex one. Most of the derivatives contract used will be of vanilla.

- **By Underlying Asset**

Derivatives can further be classified based on the underlying assets. The underlying asset can be stock, index, fixed income securities, commodities, currencies, and even weather condition. Based on the underlying asset, derivatives are named as financial derivatives (stock and index), commodity derivatives (commodities), currency derivatives (foreign exchange rate) and weather derivatives (weather condition). The traders of these assets use the respective derivatives to mitigate their risk.

Derivatives have wide usage which cannot be satisfied by a single contract. Generally, derivatives are classified as forwards, futures, options, and swaps. Forwards and futures are the agreement between two parties, a buyer and seller either to buy or sell an underlying asset at a future period for an agreed price today. Forwards are unstandardized OTC traded contracts whereas, the futures are standardized exchange traded contracts. Options are same as the futures but the buyer of the contract is given a right but not the obligation to execute the contract whereas, the seller of the contract is obliged to execute the contract at the buyer's wish. There are two types of options, call option which gives the buyer the right to buy the underlying and put option which gives the buyer the right to sell the underlying. Swaps is an agreement between two parties having similar need who exchange the cash flow instead of exchanging the asset. Apart from these four classifications, derivatives are also classified as Over the Counter derivatives and exchange traded derivatives based on the market, as Outcry traded derivatives and Electronic traded derivatives based on the trading system, as physical settled and cash settled based on the settlement of asset, as vanilla and exotic derivatives based on the complexity of the contract and as financial derivatives, commodity derivatives, currency derivatives and weather derivatives based on the underlying asset.

#### **To Do Activity**

Can divide students into groups and have a small debate on which derivative instrument used in India benefits the rural population better.

### **1.3 OTC and Exchange Traded Derivatives**

Derivatives as a financial instrument need a market place to be traded. In general, there are two marketplaces, one where standardized instrument are traded known as Exchange and another where unstandardized instruments are traded known as Over the Counter (OTC). Derivatives are categorized as Over the Counter (OTC) derivatives and Exchange traded derivatives based on the market where they are traded. The derivative instruments traded in both the markets vary due to various reasons making it vital for the traders to know about these markets, so as to choose the right derivative instrument to mitigate their risks. This is framed with the objective to brief about the Exchanges and Over the Counter market and about the derivatives traded there. The content covered in this is as follows

- Over the Counter (OTC) Traded Derivatives
- Working of OTC Traded Derivatives
- Exchange Traded Derivatives
- Working of Exchange Traded Derivatives
- OTC versus Exchange Traded Derivatives

### Over the Counter (OTC) Traded Derivatives

Over the Counter (OTC) market is the decentralized market where market participants trade directly with one another. The Over the Counter (OTC) derivatives are unstandardized contracts, traded between known parties based on personal goodwill. The OTC derivative contracts are bilaterally negotiable making them unique (i.e.,) tailor-made contracts. Every contract is different from other and so, there is a wide variety of OTC derivative instrument. Usually, in an OTC market, a trade will be executed between two parties without anyone else knowing about the price of the transaction (i.e.,) OTC market lacks transparency of prices. Forwards and Swaps are the most commonly traded OTC derivatives. Sometimes Options are also traded in the OTC market. The OTC derivatives market has no intermediaries which result in low trading cost of its products. Most of the derivatives instrument emerges as OTC product which keeps the market more active.

Figure 1.5 shows a simple representation of OTC derivatives.



Figure 1.5 OTC Traded Derivatives

### Working of OTC Traded Derivatives

In an OTC market, trade occurs between two parties say a buyer and a seller who bilaterally negotiates the terms and conditions of the contract. Once, both the parties are satisfied with the terms and conditions of the contract, they enter into the agreement. Upon the expiry, the parties will execute the contract and settle by themselves without any intermediaries, but there is also a possibility that anyone party may step back from the contract leading to counterparty risk. If a party fails to fulfill the contract, the other party will have to face the risk, hence there is no guarantee for OTC traded derivatives. For example Mr. X is a farmer of paddy and Mr. Y is a rice miller who bilaterally negotiates the paddy price for the upcoming harvest after three months at Rs.12,000 per ton. After three months, upon harvesting, Mr. X delivers paddy to Mr. Y and receives the agreed price of Rs.12,000 per ton.

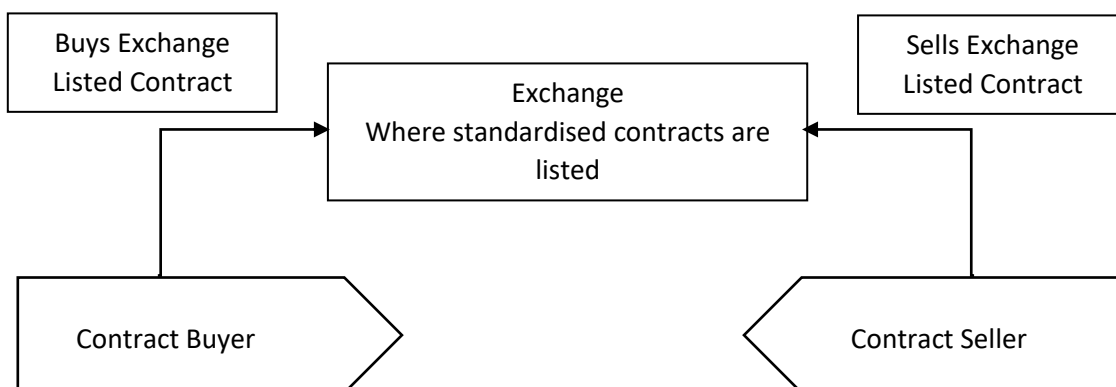
### Exchange Traded Derivatives

In contrast to the Over the Counter (OTC) market, Exchange based market is a centralized market where market participants from different places gather at one place known as the exchange to perform the trade. The exchange acts as the bridge between the various buyers and sellers. The Exchange traded derivatives are standardized contracts wherein the exchange imposes the standards of the contract. Hence, the Exchange traded derivative contracts are unilateral (i.e.,) readymade contracts. In an exchange based market, the traders can trade only with the standardized contracts listed on the exchange. The trade is performed on the trading platform of the exchange which makes the price quotes of trades transparent to all traders resulting in better price discovery. Futures and options are the most commonly traded Exchange traded derivatives. Few



forwards and swaps are also traded in some exchanges. The Exchange traded derivatives are mostly the standardized and matured form of OTC traded derivatives.

Figure 1.6 depicts a simple representation of the Exchange traded derivatives.



**Figure 1.6 Exchange Traded Derivatives**

### Working of Exchange traded Derivatives

In an exchange based market, exchange plays a vital intermediary role which frames the contract and standardizes them. The buyer or seller chooses their feasible contract which is then matched by the exchange with its opposite position to make it a valid contract. It is compulsory for the traders to abide by the contract specifications given by the exchange. The exchange collects a fee for the trade known as the margin from both the parties (buyer and seller of a contract) that acts as the notional money to be paid as compensation in case of any counterparty default. Upon the expiry, in case of futures, the parties are obliged to fulfill the contract whereas, in an option, the contract is fulfilled at the discretion of the options buyer which is monitored by the exchange through its clearinghouse providing a guarantee for the trade. The clearing and settlement of trade are done by the clearinghouse after crosschecking the traders' accomplishment of the contract specification. The quality and quantity of the assets often create hindrance in physical delivery and so most trades go for cash settlement.

### OTC Versus Exchange Traded Derivatives

The difference between the OTC traded derivatives and Exchange traded derivatives are as follows

**Table 1.3 OTC versus Exchange Traded Derivatives**

Sl. No.	OTC Traded Derivatives	Exchange Traded Derivatives
1.	The contracts are unstandardized.	The contracts are standardized by the exchanges
2.	The contracts are Bilaterally negotiable between the parties of the contract.	The contracts are framed by the exchange and the parties cannot alter them making the contracts unilateral in nature.
3.	The contracts are unique and tailormade.	The contracts are similar and readymade.
4.	The OTC derivatives suffer from counter party risk.	Clearinghouse of the exchange assures exercising of contract nullifying the

		counterparty risk.
5.	There is no collateral in OTC derivatives to mitigate counter party risk.	The clearinghouse collects margin money as collateral from the parties to mitigate counterparty risk if occurred.
6.	There is a wide range of OTC derivative instruments.	There are only a few varieties of derivative instruments in exchange traded.
7.	The settlement is done by the parties themselves	The settlement is done by the clearing house
8.	There is no transparency of price as trades are independent of one another.	The trades are performed on a common platform of the exchange and hence, prices are made transparent.
9.	The cost of the contract is less as there are no intermediaries	The cost of the contract is more as there exist intermediaries such as the broker, clearing house, warehouse and appraisal.

Derivatives can be broadly classified as Over the Counter (OTC) derivatives and Exchange traded derivatives. OTC derivatives are unstandardized contracts traded at a decentralized location. The contracts are tailor-made which are bilaterally negotiable by the parties. There are wide varieties of OTC derivatives and their trading cost is also low. Apart from all these advantages, OTC derivatives also suffer from some drawbacks such as counterparty risk, no collateral support, and no price transparency. Forwards and swaps are the most commonly traded OTC derivatives. The Exchange traded derivatives are standardized contracts traded at a centralized place called the exchange. The exchange traded derivatives are ready-made contracts framed by the exchange. The exchange traded derivatives has price transparency, collateral support through margins and guaranteed execution of the trade. The exchange has a clearing house which performs the clearing and settlement of the trades and hence, the trading cost is high for exchange traded derivatives. Futures and Options are the most commonly traded Exchange traded derivatives.

#### To Do Activity

Can make a visit to local Mandis or Commodity Exchange information center and collect information about their trading and discuss them up in class.

### 1.4 Users of Derivatives

Every financial instrument is used by different people for different purposes. Derivatives are an important risk management tool widely used to mitigate the price risk of the underlying asset. Thus, the derivatives are mostly used by the users of the underlying asset. Therefore, the financial derivatives that have stocks and index as the underlying asset are used by the investors, commodity derivatives which has commodities as the underlying asset are used by the producers, intermediaries and consumers of the commodity, and currency derivatives having foreign exchange as the

underlying asset are used by exporters, importers, government and others who are in need of foreign currency. The usage of a derivative depends upon the users of it which is the focus of this section. This briefs about the various users of derivatives and their expectations on derivatives. The content covered in this section are

- Hedgers
- Speculators
- Arbitrageurs

### **Hedgers**

Hedgers are the people who use derivatives as a tool to mitigate their risk (i.e.,) their main intention is to reduce risk than earning returns. Hedgers include producers, intermediaries, consumers, importers, and exporters. The risk-averse investors who use derivatives to mitigate price risk comes under hedgers.

- **Investors**

An Investor is a person who invests his money in financial assets with the expectation to earn returns. Investors are the main participant of the financial market without whom market cannot function. The main intention of investors is to earn a profit on their investment without losing any money. Thus, the fluctuation in the price of financial assets such as shares, index and, bonds are always a threat for the investors' return. So, the investors hedge their price risk by taking derivatives of the asset upon which they have invested. In recent periods, derivatives have gained importance among investors to such an extent that many investors include derivatives as a part of their investment portfolio to mitigate risk. Investors usually hold the assets for a longer period and so they mostly trade in capital and debt instruments. So, they mostly use financial derivatives and credit derivatives. In order to entertain investors' participation in the commodity market, the exchanges have introduced contracts with lesser quantity to make the market more active (for example, Gold Guinea (8 grams) and Gold Petal (1 gram) apart from the main gold contract of 1 kg). Investors also trade with commodity derivatives and currency derivatives for earning returns through speculation or arbitrage opportunities.

- **Producers**

A Producer is a person who grows or produces a product which can be used by others. Farmers are the producers of agricultural commodities, industries are the producers of agricultural allied products, metals, and energy. These producers suffer from various risks in the process of producing the product, but the major risk that they face is when they don't get a proper price for their products. India is generally known as an agrarian economy where even in its fast industrial growth, 68% of its population still lives in rural areas with agriculture and allied activities as their occupation as per 2011 census. Every farmer in India already faces so many risks such as low rainfall, inadequate irrigation facility and improper weather conditions from the period of sowing till harvest which pulls down the expected yield. The added risk of not getting proper price for their yield affects the lives of the Indian farmers very badly. So, the farmers use derivatives to mitigate their price risk either fully or partially. Some agricultural commodities cannot be used directly, they have to be made into byproducts to use them for example sugar, rubber, oil, and oil cakes. Industries are involved in this and they are the producers for these products. These industries suffer from price risk

for both their raw materials and final products which can be mitigated through derivatives. This is the same in the cases of industrial producers for metal and energy also.

- **Intermediaries**

Intermediaries are a person who acts a bridge between the producer and consumer. They buy goods from the producer and sell it to the consumer with a profit. The intermediaries include the aggregating agents of the mandis, wholesalers, and retailers. The intermediaries also suffer from price risk on both buy and sell trades which may adversely affect their profit. So, to reduce the price risk and earn a good profit, intermediaries also uses derivatives.

- **Consumers**

Consumers are generally termed as persons who buy goods for their personal use, but trading of commodities is done for huge quantity which a common public may not be in need. Thus, consumers here mainly refer to industrial users who are in need of commodities as their raw material. The fluctuation in prices of the raw material may affect the cost of production of the firms which in turn affects their profitability. In order to reduce their cost and earn high profits, the industrial consumers trade with commodity derivatives.

- **Exporters**

An exporter is the one who sells domestic goods to foreign countries in exchange for money. Exporter receives payments denominated in foreign currency. An exporter suffers from an additional risk apart from the price risk of the goods he exports known as the exchange rate risk which occurs due to the fluctuation in foreign exchange rate. The fluctuating foreign exchange rate acts as the threat on the exporter's earning which can be mitigated through currency derivatives. Thus, exporters will deal mainly with commodity derivatives for price risk and currency derivatives for exchange rate risk.

- **Importers**

An Importer is opposite to the exporter (i.e.,) importer is the one who buys foreign goods into the domestic country and makes payment in foreign currency. So similar to the exporter, importer also suffers from exchange rate risk. Thus, the importer also uses commodity derivatives for price risk and currency derivatives for exchange rate risk.

- **Government Organizations**

The Government usually acts as the regulator of the market, but government organizations dealing with capital, commodity and currency use derivatives to hedge their risks.

### **Speculators**

Speculators are the people who use derivatives to earn profit from the leverage provided by it. The leverage of derivatives not only increases the potential for large gains for the speculators but also for large losses. Speculators include risktaker investors. Speculators act as the counterparty for hedgers as the derivative contracts shift the risk of risk averse to risk takers and they make the market more liquid.

### **Arbitrageurs**

Arbitrageurs are people similar to speculators but these people use the arbitrage oppority (i.e.,) the difference in price between the spot market and derivatives market to earn a profit. Arbitrageurs attempt to make profit from price inefficiencies prevailing in different markets through simultaneous trading which offset each other. They generally set up a trade in the physical / spot market and take

an opposite position in the futures market simultaneously to gain profit from price differentials between the markets. Thus arbitrageurs make profit from small differences in price through simultaneous buying and selling. Thus arbitrage is considered as a type of hedging which involves limited risk. Arbitrageurs also include risktaker investors, but compared to speculators, arbitrageurs' probability to earn and lose will be limited.

The usage of derivatives depends upon the users and their motive of using derivatives. The users of derivatives can be broadly classified into three, namely, the hedgers, the speculators and, the arbitrageurs. Hedgers are people who use derivative instruments to mitigate their risk. Hedgers include the risk averse investors, farmers, industrial producers, intermediaries, consumers, importers, and exporters. Speculators are people who use the leverage provided by derivative instruments to earn a profit. They have to face the same amount of risk also. Arbitrageurs are people who use the difference of price between the spot market and derivatives market to earn a profit. Speculators and Arbitrageurs include risk taker investors. Though the hedgers are the major users of derivatives, speculators and arbitrageurs act as the counterparty for hedgers making the market more active and liquid.

#### **To Do Activity**

Split up and form groups according to the number of commodity brokers in your locality and collect information about their commodity traders on the category studied in this .

### **1.5 Trading Methods and Market Positions**

Trading in general means the process of buying or selling an asset and the main part of trading is the system through which one is going to buy or sell the asset. In Over the Counter (OTC) market trading is done through direct communication between the buyer and seller and so there is no need of any trading system. Whereas in Exchangebased market, the exchange acts as an intermediate between the buyer and seller and there arises the need for a trading system. Knowing about the financial product, its uses, types, users, and markets are not just enough as they are futile if a trader is unaware of trading in the financial products. This briefs about the trading systems and the market positions prevailing in the Commodity derivatives market. The contents of this are as follows

- Trading systems
  - Open outcry trading system
  - Electronic trading system
- Open Outcry trading system versus Electronic trading system
- Market positions
  - Long position
  - Short position
  - Setting off position

#### **Trading Systems**

The trading system means the process through which trading is done in a market. The developments across markets also brought new methods of trading systems. When trade is done between two parties privately they negotiate the prices among themselves with regard to the quantity, quality and other features of the asset which is done in OvertheCounter (OTC) market. There is no need for

any trading system in this regard as traders perform one-to-one trade and can communicate in a known language. But when trade took place in a common platform such as Exchanges, where there will be many participants who vary in different aspects. So, the importance of trading system arises to provide a common platform in which all the participants can participate in trading. Generally, across the globe trading in any exchanges can be done in two ways namely,

- Open outcry trading system and
- Electronic trading system.
- **Open Outcry Trading System**

Open outcry trading system is a floor-based trading method. The trading floor is known as a pit or ring. This method involves shouting and hand signaling by traders on the exchange trading floor to transfer information about buy and sell orders. The trading process is of an auction in which all bids and offers on each and every contract are made known to the public. The traders adopting open outcry method usually belong to the same language community and this method has been used across the world despite the cultural and language differences of the people.

The trading in this open outcry method would generally start from a customer by placing an order through a broker, who then forwards the order to a booth on the exchange floor where it is conveyed using hand signals to negotiate the price by shouting out the order to the other floor traders. Once the price is negotiated, both the parties of the trade record the order manually and at the end of the day, the clearinghouse settles all the trade by ensuring that no discrepancy exists in the matched trade information. Traders use fingers to chin to indicate the contract size from 1 to 9, fingers to forehead for multiples of 10 and fist on the forehead for multiples of 100. The open outcry method seems to be complex, confused and hard for new and unskillful investors. Top commodity exchanges in the world such as New York Mercantile Exchange (NYMEX), Chicago Board of Trade (CBOT) and London Metal Exchange (LME) make use of this open outcry method even today with some development from the original one. In a country like India with tremendous growth in market participants, the open outcry method becomes more chaotic and so, the Indian commodity exchanges have transformed from open outcry method to screen-based electronic trading system. The open outcry method generally discourages traders from remote places due to certain disadvantages such as high trading and travel expenses as the broker has to travel all the way from their place to the exchange to trade, fear of manipulation in price or order size by the broker, doubtfulness about the efficiency of the broker. On the other hand, this system has the advantage of providing physical contact between traders.

- **Electronic Trading System**

When trading is done across different cultures, backgrounds, and languages, the open outcry methods became obsolete. The development in Information and Communication Technology (ICT) and the internet facilitated the process of communication and trading to break the barriers in open outcry method. Electronic trading or trading is a screen-based trading method which has brought the buyers and sellers too closely by creating a virtual market place with the help of information technology. Thus electronic trading system offers significant advantages such as, easy accessibility to remote investors in real time, improvement in efficiency, low transaction costs, greater transparency, faster trading and less prone to manipulation by market makers and brokers/dealers.

The trading starts with a customer placing his / her order to a broker through telephone who then enters the order into the electronic terminal which is connected to a host computer through a Virtual Private Network (VPN). The host computer matches bids with offers according to rules that are predetermined by the exchanges and executes the matching orders, so that trades are matched immediately. As in outcry method, here also at the end of the trading day, the clearinghouse clears the trades as soon as the host computer is linked to the clearinghouse. In India almost all the commodity exchanges use electronic trading method but, the leading commodity exchanges across the world still follow both the trading systems. The electronic trading system possesses some disadvantages such as lack of personal contact with the traders, inaccessibility for illiterate persons and it is mandatory for the traders to possess a minimum knowledge about how to trade.

### Open Outcry Trading System Versus Electronic Trading System

When there exists more than one trading system, there comes a comparison between them. Some notable differences between the two trading systems, Open outcry trading system, and Electronic trading system are given below.

**Table 1.4 Open outcry Trading System Versus Electronic Trading System**

Basis of Difference	Open Outcry Trading System	Electronic Trading System
<b>Procedure</b>	Understanding the trading procedure is Complex and Chaotic	The trading procedures are easy
<b>Coverage</b>	Traders from remote places cannot trade due to hardship in accessibility of the exchange	Traders from any part of the world can participate in trading.
<b>Accuracy</b>	There can be a misunderstanding about trading figures as it involves hand symbols and open shouting	It is more accurate as orders are placed by typing numbers
<b>Knowledge</b>	This system doesn't require any educational knowledge, only practice is enough	This system needs knowledge about computer and internet as trading is based upon this.

### Market Positions

All participants in the market will have some market position. In physical or cash market, the participants' position will be a cash position whereas, in the derivatives market, it is the future position. Generally, the market positions can be of two; Long position and Short position.

- **Long Position**

The long position generally means a position of holding something, say the person who owns or possesses a commodity is said to have long cash position and the person who owns a derivative contract is said to have a long futures position. A person can said to have a long cash position if he produces the commodity or buys it. The holder of the long position will gain if the price of the commodity or the derivative contract goes up.

- **Short Position**

The Short position in contrast to long position means a position scarce of something. The person who sells a commodity is said to have short cash position and the one who does not own or possess a derivative contract is said to have a short futures position. The holder of the short position will gain if the price of the commodity or the derivative contract goes down.

- **Setting Off Position**

Setting-off position means taking an opposite position to the one possessed by the market participant so that the market participant will not have any market position at the end of the day. Offsetting of market positions can be done only when both long position and short positions are similar in size. If there exists any difference between sizes of the market positions, then the excess position still remains open for the trader. In practice, the futures market traders who are not willing to take the contract till delivery will close their contract halfway by taking opposite trade position known as setting off the trade position. The profit and loss depend upon the price difference between the long position and short position of a commodity or derivative.

The way in which a trade is done refers to the trading system. Knowledge about the commodity derivatives will be futile if the method of executing a trade is unknown. It is the trading system that helps a trader to place his order and hedge his risk in the derivatives market. The two common trading systems used across the world are open outcry trading system and an electronic based trading system where the former is the oldest traditional one and the latter is the new advanced one. The open outcry trading system uses physical gestures for placing and executing a trade done on a trading floor whereas, the electronic trading system uses Information and Communication Technology (ICT) for placing and executing a trade done in a virtual trading platform. Both the trading systems have their own pros and cons, but with the advent and development of internet based communication and storing system, the electronic trading system is gaining importance with most of the commodity exchanges in India and across the world have shifted from open outcry trading system to the electronic trading system. Upon the trading system, knowing about the market position of a trader in trade is also important. The market position depends upon the possession of the physical commodity or its derivative contract. A long position of a trader indicates the possession or owning the physical commodity or a buy futures contract whereas, a short position of a trader indicates the not possessing or owning the physical commodity or a sell futures contract. When any one of these positions is taken in opposition to the owning position to offset the trade it is known as offsetting position. Thus, with the understanding of derivatives, its markets, products, participants and basis trading related information the upcoming s further provides exposure to the Indian commodity derivatives market.

### **Model Questions**

1. What is the different trading system prevailing in the world?
2. Explain the difference between the Open outcry trading system and Electronic trading system.
3. What is the market position? Explain.
4. Explain forwards and futures and list the difference between them?
5. How Options differ from futures?
6. Who are Speculators and Arbitrageurs?

### **To Do Activity**

Students can collect various information about the trading systems and can have a small group play depicting the commodity trading in those trading systems.



# Chapter 2 Commodity Markets

## Introduction

The commodity market is said to be an age-old market of the world which underwent various changes across countries and centuries. Any financial product needs a good market to perform better and the commodity and its derivatives are not exceptional to this. Thus, knowing about the commodity and commodity market is important for students that act as the base for this course. The second Chapter focuses on commodity and its market to give a detailed knowledge about them to the students.

## Objectives

- To elaborate about commodities and commodity market.
- To brief about the commodity market structure in India.
- To explain about commodity market participants.
- To brief about commodity as an investment avenue.
- To explain about the return and volatility calculations of commodities.

## Structure

2.1 Meaning and Structure of Indian Commodity Market

2.2 Commodity Exchanges in India

2.3 Market Participants and Their Importance

2.4 Commodity as Investment Tool

2.5 Return and Volatility of Commodity and Its Hedging

## 2.1 Meaning and Structure of Indian Commodity Market

A market is generally termed as the place where trade takes place and commodity market is referred to as the place where various commodities are traded. The commodity market is said to be an age-old market in the world. Trade is not possible without a market and so, knowing about the market is essential. India is a nation, well known for its commodity wealth across the world and has a very long history of the commodity market. Thus, knowing deep about the Indian commodity market is essential to deal with it. This aims at providing detailed structure of Indian commodity market by covering topics such as;

- Meaning of Commodity market
- Evolution of Indian commodity market
- Structure of Indian commodity market
  - Physical Market
  - Electronic Market

## Meaning of Commodity Market

The word commodity has its origin from the Latin word “Commodus”, which means desirable or agreeable and French word “commodité”, which refers to an object of utility. A commodity, in general, refers to all kinds of movable property, excluding actionable claims, money, and securities it can also be explained as an economic good, tradable good, product or article of commerce; something for which there is an established market where it can be bought and sold in commercial transactions between the buyers and sellers. Commodity markets have existed for centuries around the world from the period when people used the barter system to exchange their goods to meet their needs. Commodity markets touch the lives of each and every citizen of any country, either as producers or consumers. The commodity market structure is broadly classified into two; the physical market and the derivatives market. The physical market is where the commodities are sold and delivered immediately. It is also commonly known as the cash market or spot market. On the other hand, the derivatives market is where the buyer and seller fix the price of the commodities today but the delivery and payment takes place at a future date. The commodity derivative markets are believed to have their origin from the ancient Sumerian times which underwent continuous development across centuries and countries.

## Evolution of Commodity Derivatives Market across the Globe

Undocumented evidence shows that futures trading has started with the trading of rice futures in China as long as about 6,000 years ago. The first recorded derivatives contracts can be traced back in the book of politics written by Aristotle. While commenting about the strength of philosophers, he relates the story of Thales of Miletus in ancient Greece (624-547 BC), who during winter, negotiated oil presses for the spring olive harvest which was similar to the options contract. The modern commodity markets have their roots in the trading of agricultural products. The futures and forward trading started to spread across Europe in the early 17<sup>th</sup> century which witnessed a tremendous increase during the mid of 18<sup>th</sup> century. In 1744, the Baltic Exchange was started to trade coffee in London. Many commodity exchanges were set up by the middle of the 19<sup>th</sup> century across the globe and open for trade in various commodities. In 1854 Argentina’s Bolsa De Cereales was started in Argentina, the London Metal Exchange (LME) of London was started in 1877 and in 1898 Chicago Butter and Egg Board was established which was later changed as Chicago Mercantile Exchange (CME). The first organized grain futures trading began in places such as New York City and Buffalo in the United States of America (USA). In 1849, trade using standard instruments on wheat, corn, cattle, and pigs were began on the Chicago Board of Trade (CBOT) in the USA which remains the world’s oldest futures and options exchange. Other food commodities were added to the Commodity Exchange Act and traded through CBOT in the 1930s and 1940s, expanding the list from grains to include rice, mill feeds, butter, eggs, Irish potatoes and, soybeans. The economic impact of the development of commodity markets is hard to overestimate. Through the 19<sup>th</sup> century, the exchanges became effective spokesmen for, and innovators of, improvements in transportation, warehousing, and financing, which paved the way to expand interstate and international trade. By the mid of 20<sup>th</sup> century, many countries started organized commodity exchanges among which most were single or specific commodity exchanges mostly controlled by producers and traders of that commodity. The commodity exchanges were extended even to trade carbon emission in recent years. The Chicago Climate Exchange (CCX) is one among the popular exchange dealing with financial instruments in carbon trading, greenhouse gases and other emission gases that came into existence after enacting Kyoto Protocol on climatic change.

During the mid-eighties, financial derivatives market became stronger while compared to its pioneer commodity derivatives market. Commodity derivatives trading has witnessed the fastest growth in the last few years making it one of the most rapidly growing markets and an investment avenue in the financial sector across the globe.

### **Evolution of Commodity Derivatives Market in India**

In India, the informal commodity derivatives trading existed from ancient days but the formal market got its shape in the late nineteenth century. The commodity derivatives market in India began with the establishment of the Bombay Cotton Trade Association in 1875. Futures trading on oilseeds began with setting up of Gujarati Vyapari Mandali in 1900, which carried out futures trading in ground nuts, castor seeds, and cotton. The Calcutta Hessian Exchange Ltd. and the East India Jute Association Ltd. were set up in 1919 and 1927 respectively for futures trade in raw jute. Futures markets in bullion began in Mumbai in 1920, and later, similar markets were established in Rajkot, Jaipur, Jamnagar, Kanpur, Delhi, and Calcutta. The futures trade in spices was first organized by the India Pepper and Spices Trade Association (IPSTA) in Cochin in 1957.

The growth of Indian commodity markets was not smooth which faced trade ban for a long period of four decades from 1966 and was reintroduced in the early 2000s. The government appointed several committees namely A.D. Shroff Committee (1950), Dantwala Committee (1966), Khusro Committee (1980) and Kabra Committee (1994) to examine the performance of the commodity derivatives market. Expert Committee on National Agricultural Policy (2000) and Abhijit Sen Committee (2007) were set up to develop and strengthen agricultural commodity futures trading. Several recommendations of these committees led the government to set up the Forward Market Commission (FMC) under the Forward Contracts (Regulation) Act in 1953 as the regulating authority of the commodity derivatives market. Later, on 28<sup>th</sup> September 2015, the FMC was merged with Securities Exchange Board of India (SEBI), the stock market regulator to act as the common regulator for both capital and commodity market. In the last decade, the commodity market has grown near to stock market both in network and volume (Gupta, 2011). India is one of the leading producers of some agricultural commodities and a major consumer of bullion and energy products in the world. This promotes India to be a center for trading commodity derivatives (Ahuja, 2006).

### **Structure of Indian Commodity Market**

The Indian commodity market exists over centuries, but the exchange-based commodity market came long after the regular market. The advent of computer and internet brought developments in commodity market leading to the division of commodity market into two, one is the Physical market (or) Spot market and another one is the Electronic market (or) Derivatives market.

- **Physical Market**

The Physical market is where the farmers or producers bring their products and traders buy them. Usually, it is also referred to as spot market and it comprises of local mandis, the place where wholesale commodities trade takes place. The mandis usually deal with agricultural commodities and agricultural marketing is a state subject. Thus, these mandis are governed and regulated by the State Agricultural Marketing Board (SAMB) of the respective states through Mandi Boards at the district level. Each mandi board comprises of three representatives, one from the farmers, one from the traders and the other from the respective state government with the Chairman usually being the one from farmer community. The mandi is operated by a

secretary, a recordkeeping clerk, and a quality and grade inspector. The mandis will trade in at least one commodity that is special to that region. These mandis act as the market place where agricultural commodities spot prices are set. The mandis have a licensed trader/agent known as the Arhatiyas who act as the intermediary between the farmers and wholesalers on a commission basis. The Arhatiyas buy from the farmers and sell to the traders, then at the end of the day reports the price and volumes of trade to the mandis. The functioning of Mandi is expressed in step by step process as under

- The farmers or sellers bring their produce (i.e.) commodity to the mandi.
- At the entrance, the commodity is inspected for quality and grade and is certified by the mandi inspector.
- The seller then goes for trading which may happen in three possible ways, one is through Arhatiyas, second is by using brokers' services and third is by an open outcry auction process.
- Once a trade is done, the price and trade volume is recorded at the mandi and for each trade, the price is newly set.
- The commodities are delivered to the buyer after his physical inspection of commodities and in case of any discrepancies regarding quality and grade, the mandi inspector clarifies it thereby completing the trade. If any goods brought to the mandi are left unsold, the mandi will hold it only overnight after which the commodities are to be moved to some public or private warehouses.
- Being a spot market, the settlement of mandis are done on T+0 or T+1 basis.
- Once, the commodities leave the mandi yard, it passes through various supply chain before reaching the ultimate customer.

- **Electronic Market**

Electronic market is the market that uses the internet which has emerged after the advent of information and communication technology. The commodity exchanges use this electronic market which facilitates a trader from any part of the nation or even world to participate in the market through the internet. A trader can trade from his own place which reduces the cost and time of participating in a physical market. This easy and convenient trading provided by the electronic market makes it important in recent decades. The electronic market across the globe comprises both spot and derivatives market whereas, in India, only the derivatives market is available in the electronic market. Thus, the electronic market in India is widely known as the futures market. The working of the electronic market is as follows;

- A trader can trade through a registered broker or trading member by opening a demat account.
- Then, the trader has to place his order by quoting the buy or sell price and the quantity through the broker which gets executed on finding the exact opposite match.
- Once the trade is executed, the commodity exchanges has certain procedures to be followed by the traders and upon expiry of the derivative contract of the commodity, the seller has to give delivery at a place specified by the commodity exchange which undergoes quality and quantity check. The buyer has to take delivery of the commodity against payment, thereby completing the trade.
- All the fund related transactions and tracking of the trade are done through the internet.

Commodity market, in general, is referred to as the place where buyers and sellers meet to trade on commodities. The commodity market is an age-old market of the world which has undergone various developments and changes across the globe. India being famous for its commodity wealth is not an exception for this. The evolution of Indian commodity market wasn't smooth which underwent wide bans and restrictions on trades and commodities. After the recommendations of various committees, the Indian commodity market saw various developments which have now geared up after the merger of the commodity market regulator Forwards Market Commission (FMC) with the stock market regulator Securities and Exchange Board of India (SEBI). Based on the style of trade the Indian commodity market can be classified into two, one the physical market and the other one is the electronic market. The Physical market is also referred to as the spot market which fixes up commodity prices in the local mandis with the buyer and seller meeting in person. The Electronic market, on the other hand, is referred to as the futures market that uses information and communication technology in which trade occurs through the internet. The details about the Indian commodity exchanges, derivative contracts, and their working are to be covered in the upcoming s.

#### **To Do Activity**

Group of students can visit local mandi and collect information about their workings and practices. The students can discuss them in the class by a small drama.

## **2.2 Commodity Exchanges in India**

The electronic market that we discussed in the previous exists through an organization or institution known as the exchange. Commodity exchanges act as a central market place for buyers and sellers to meet and trade upon their commodities (i.e.,) they just facilitate the buyers and sellers to trade on a common platform without buying or selling any commodity for itself. In the growing usage of the commodity market that too the electronic market, it is important to know about the commodity exchanges which is the main focus of this section. This discusses the Indian commodity exchanges such as;

- Multi-Commodity Exchange of India Limited (MCX)
- National Commodity and Derivatives Exchange Limited (NCDEX)
- Indian Commodity Exchange Limited (ICEX)

### **Commodity Exchange**

Commodity exchange is generally termed as an organization or an institution or an association which hosts a market where the commodity buyers and sellers can meet and trade on various commodities. The commodity exchanges just provide a platform for trade with neither participating in the trade activities nor fix up prices for the trade. The commodity exchanges act as an intermediate between parties thereby eliminating counterparty risk. The commodity exchanges perform three important functions such as

- 1) Setting up rules and regulations on buying and selling so as to make them a standardized one.
- 2) Resolves any trade disputes that arise during trades.
- 3) Helps in generating and disseminating valuable trade signals mainly relating to information on commodity prices and market position.

Most of the commodity exchanges across the globe were initially started to trade specific or variety of agricultural commodities which were later extended to trade on nonagricultural commodities. The liberalization, globalization and technological advancements led to developments in commodity exchanges worldwide. Similarly, the Indian commodity exchanges have also witnessed tremendous growth after the implementation of neoliberal economic policies in 1991 by eliminating the earlier restriction on commodity trading in exchanges. Subsequently, the Government has permitted new commodities and also previously banned commodities to be traded in new and existing commodity exchanges. The new commodity exchanges were demutualized one which means the ownership, management and trading functions of the exchange are dealt by different persons or groups.

During the initial stages of the Indian commodities market, most of the exchanges were constrained to particular regions dealing with the major commodities of that region. Later development of national level commodity exchanges brought a decline in regional level commodity exchanges. In 2015, there were six national and six regional commodity exchanges in India. Due to noncompliance of SEBI's (Securities and Exchange Board of India) mandatory requirements of no trading operation and very less trade for a longer period of time, most of these exchanges were not able to continue as a commodity exchange. Thus, currently there are only three commodity exchanges in India that provides nationwide trading in commodities and they are

- 1) Multi-Commodity Exchange of India Limited (MCX)
- 2) National Commodity Derivatives Exchange Limited (NCDEX)
- 3) Indian Commodity Exchange Limited (ICEX)

#### **Multicommodity Exchange of India Limited (Mcx)**

MCX is one of the nationwide multicommodity exchanges in India that facilitates online trading in commodity derivatives. MCX was incorporated in 2002 and commenced operation from November 2003 with its headquarters situated in Mumbai. MCX offers futures trading in various commodity segments such as bullion, base metals, energy and agricultural commodities. After the merger of Forwards Market Commission (FMC) with SEBI, MCX is been operating under the regulatory frameworks of SEBI. The exchange provides a neutral, secure and transparent trade mechanism along with formulating quality parameters and trade regulations in line with the regulatory framework of SEBI. As on September 2018, MCX has 680 registered members and 53,824 authorized persons present in 1076 cities and towns across India. MCX is the only Indian commodity exchange with a multicommodity index. The flagship index series of MCX is I COMDEX which is developed jointly with the world famous index developer Thomson Reuters. The I COMDEX series is a real time commodity futures prices index that consist of a broad market index I COMDEX composite, two sectorial indices I COMDEX Base metal and I COMDEX Bullion and three single commodity indices I COMDEX Gold, I COMDEX Copper and I COMDEX Crude oil. The exchange also has other indices such as MCXCOMDEX, MCXAgri, MCXEnergy, MCXMetal and Rainfall Index which are calculated completely by the exchange itself and these were the flagship index of MCX before the iCOMDEX index series.

MCX is the leading commodity exchange in India with a market share of 91.4% in terms of the traded value of commodity futures as per 1<sup>st</sup> half of the financial year 20182019. The exchange also has pride of introducing India's first commodity options contract with Gold in 2017 which is extended to Silver, Copper, Zinc and Crude oil. MCX possess various ISO certificates such as ISO 90012015 Quality

Management System, ISO 27001:2013 Information Security Management Standard and ISO 14001:2015 Environment Management Standard. In order to have an improved trade practices and to facilitate global commodity market integrity, the MCX has signed strategic alliance with leading commodity exchanges across the globe such as Chicago Mercantile Exchange (CME) group, London Metal Exchange (LME), Dalian Commodity Exchange (DCE) and Taiwan Futures Exchange (TAIFEX). Apart from this, the MCX also has tie up with various trade bodies, corporates, educational institutions and research centers across India.

MCX is the first commodity exchange to have a solely owned clearing corporation known as the Multicommodity Exchange Clearing Corporation Limited (MCXCCL). MCXCCL acts as the central counter party for all trades executed on the MCX platform and also provides collateral management and risk management services to the market participants along with its primary functions of clearing and settlement. The MCXCCL clears all trades through the trading members of MCX and settles all trades through the clearing members of MCX. It also provides an electronic commodity accounting and receipts tracking system through a web portal known as Commodity Receipts Information Systems (COMRIS).

The MCX also has pride of being the first publically listed exchange in India with 6,427,378 Equity shares dealt by the public. The exchange encourages farmers' participation in the derivatives market through Gramin Suvidha Kendra in partnership with India Post which has reached 31 centers, 522 branch post offices and 2154 villages covering the states of Maharashtra, Uttar Pradesh, Madhya Pradesh, and Gujarat as of September 2018. MCX is the vibrant commodity exchange whose developments have led the Indian commodities market to get notable position among the world commodity bourses.

### **National Commodity and Derivatives Exchange Limited (NCDEX)**

NCDEX is another important commodity exchange in India. It is also an online based nationwide multicommodity exchange mostly focused on agricultural commodities. The exchange was incorporated on 23<sup>rd</sup> April 2003 and commenced its operations from 15<sup>th</sup> December 2003. NCDEX has its headquarters at Mumbai and is also regulated by the SEBI. NCDEX offers futures trading in Metals, Bullion and a wide variety of agricultural commodities. The exchange is the only commodity exchange promoted by national level institutions such as Life Insurance Corporation of India (LIC), National Bank for Agriculture and Rural Development (NABARD) and National Stock Exchange of India Limited (NSE). Apart from the above promoter shareholders, the NCDEX has other shareholders such as Canara Bank, Punjab National Bank (PNB), CRISIL Limited, Indian Farmers Fertiliser Cooperative Limited (IFFCO), Goldman Sachs, Intercontinental Exchange (ICE), Shree Renuka Sugars Limited, Jaypee Capital Services Limited and Build India Capital Advisors LLP, Oman India Joint Investment fund, IDFC Private Equity Fund III as of December 2018. These shareholders of NCDEX help in building up institutional experience, trust, nationwide reach, technological advancement and risk management skills. As NCDEX is a demutualized commodity exchange, the management of the exchange lies with expert Board of Directors.

NCDEX has a flagship index entirely based on agricultural commodities known as Dhaanya that acts as the barometer for the agricultural commodity market in India. The Dhaanya index constitutes top 10 traded agricultural commodities on the NCDEX platform that is rebalanced every three months. Being an agricultural commodity index, Dhaanya provides information about the key traded

agricultural commodities and its price movements to the backbone sector of India. NCDEX is India's first commodity exchange to offer options trading in agricultural commodities with Guar Seed 10MT that was extended to Chana, Refined Soy Oil, Soy Bean and Guar Gum as of December 2018.

NCDEX also possess a wholly owned subsidiary known as NCDEX eMarkets Limited (NeML) formerly the NCDEX Spot Exchange (NSPOT) which performs an online webbased spot market for both agricultural and nonagricultural commodities. But as the exchange principle, this institution also focuses highly upon the agricultural sector. NeML helps farmers to realize the high price for their produce and also the discerning consumers in getting supplies on time. The NeML has pioneered initiatives like Mandi Modernization Program (MMP), ePledge and eMarketing through which the fragmented Indian Agricultural market can be brought together as a national market. NeML has implemented models of its initiatives in a few Indian states and has got good recognition which is soon to be implemented in other states as well. The development of NeML and NCDEX leads to development in the rural economy of India.

NCDEX has a wholly owned clearing house known as the National Commodity Clearing Limited (NCCL) which is responsible for all clearing and settlement functions of trades executed on the NCDEX platform, with robust and transparent risk management opportunities. The exchange also provides its participants with a web based electronic accounting tracking service known as COMTRACK through which the participants can track the deposit and transfer of commodities from the exchange approved warehouses. Apart from the clearinghouse and tracking system, the exchange has also incorporated a separate institute or market intermediary in February 2017 known as the National Repository Limited (NERL) which provides a platform for issuing an electronic form of negotiable warehouse receipts for commodities. Many farmers are been benefited by NERL to get easy access to loans upon their products. NCDEX being the largest Agri commodity derivatives exchange operates with a prime aim in developing rural economy.

### **Indian Commodity Exchange Limited (ICEX)**

ICEX is another nationwide online multicommodity exchange providing trading in derivatives of various commodities. The exchange has its headquarter situated at Mumbai. It is a recently emerged commodity exchange operating since August 2015 which is now regulated by SEBI. The exchange is owned by a public private partnership with MMTC Ltd., Indian Potash Ltd., KRIBHCO, IDFC Bank, Reliance Exchange Next Ltd. (A group Company of Reliance Capital) and India Bulls Housing Financial Services Ltd, as its major shareholders. ISEX is the world's first commodity exchange to offer futures trading in Diamond. Apart from Diamond, the exchange also offers futures trading in steel and various agricultural commodities. ISEX has tie up with Millennium Software (Private) Limited (MIT), a wholly owned subsidiary of London Stock Exchange (LSE) for its technological needs, IIDGR a De Beers Group Company for Diamond certification and MALCAAMIT JK for logistics and security services of Diamond. The clearing and settlement functions are carried out by a separate department of the exchange. On 7<sup>th</sup> September 2018, the Ahmedabad based National Multicommodity Exchange (NMCE) one of the oldest commodity exchange in India got merged with the Reliance anchored ISEX after the approval of the National Company Law Tribunal. This made ISEX the third largest commodity exchange in India after MCX and NCDEX.

The commodity exchange is an organization that facilitates a platform for the buyers and sellers to trade on the commodities. The usage and importance of the commodity exchanges have been



increasing day-by-day. The commodity exchanges across the globe provide both spot and derivatives segment of trade whereas, the Indian commodity exchanges are providing only derivatives trading in them. Most of the Indian commodity exchanges were constrained to particular region dealing with major commodities of that region. Due to various bans and policy issues, the Indian commodity exchanges couldn't grow up to a remarkable position till 2003, after which the Indian Government permitted many commodities for trade. Prior to September 2015, when the Forwards Market Commission (FMC) was regulating the commodity market, there existed various regional commodity exchanges apart from national commodity exchanges. But after the change in regulatory control to Securities and Exchange Board of India (SEBI), all the regional commodity exchange were closed one by one due to noncompliance of SEBI's new regulation to continue as an exchange. Thus, at present, there is only three national commodity exchange in India, namely the Multicommodity Exchange of India Limited (MCX), National Commodity Derivatives Exchange Limited (NCDEX) and Indian Commodity Exchange Limited (ICEX). All these exchanges have various remarkable achievements which uplifted the Indian Commodity Market to a global level. MCX is the leading commodity exchange that trades multicommodities with a notable share of trade in Bullions, Metals, and Energy. NCDEX is a leading exchange in agricultural commodities. The ICEX is the first to trade in Diamond.

#### **To Do Activity**

Divide into teams to gather practical insights about the working of commodity exchanges, its initiatives in developing the commodity market and its reach to the local rural groups.

### **2.3 Market Participants and Their Importance**

The previous s have briefed about the commodity market, its structure and exchanges whose development is mainly based on their participants. All the efforts taken by the government or exchange will become futile if there is not much participation in the commodity market or the participants are not active. This imposes the importance to know about the market participants, their nature, and aim and market activities, which is the main focus of this covering the topics such as

- Hedgers
- Speculators
- Arbitrageurs
- Market makers

#### **Hedgers**

Hedgers are the main participants of a commodity market whose main aim is to mitigate their risks such as price risk or economic risk. To say in simple words, hedgers are the persons who participate for the purpose of hedging which are an act of minimizing or eliminating the possibility of loss. Hedgers usually take opposite positions in two markets to say spot market and derivatives market to offset their loss/gain in one market with that of another market. Both the regulator and exchange always focuses to gain hedgers confidence and to protect their interest as the prime function of the derivatives market is price discovery, which is nothing but the act of determining the price of the commodities by assimilating both present and future available market factors. Hedgers are generally

termed as riskaverse investors who include the actual persons dealing with the commodities such as farmers, manufacturers, exporters, importers, and traders.

Example for Hedging A farmer who cultivates Wheat, is expecting 10 MT of harvest in May. The prevailing spot market price is Rs. 12,000 per MT and due to the bearish market condition, the farmer fears for losing his profit. Thus, he hedges his risk using derivatives say futures and the May Wheat futures trades at Rs. 11,900 per MT. In May after harvest, the farmer finds the spot market price is just Rs. 11,500 per MT. As he has hedged his risk using derivatives, he will now earn Rs. 11,900 per MT instead of Rs. 11,500 per MT thereby safeguarding himself from the potential loss.

### **Speculators**

Speculators are persons who participate in trading to make profits out of price changes or market fluctuations rather than to mitigate price risk. A trader is known as Speculators as they carry out speculation which is the act of buying and selling an asset to make a huge profit from the changes in price levels. They usually deal with one market at a time and do not have the intention to take or give delivery of the commodity they are trading with. Therefore, speculators usually close their trading by taking the opposite position of their existing open position with a favourable price change. Contrary to the Hedgers, Speculators are termed as risktaker investors who usually act as the counterparty for a hedger. They are the market participants who are active in trading thereby making the market liquid and at the same time volatile. The regulators and exchanges always have a close look at the speculators' behavior so as to retain the interest of the market.

Example for Speculation A trader who trades in Wheat expects a bearish trend in the market with March Wheat futures trading at Rs. 11,800 per MT and May Wheat futures trading at Rs. 11,600 per MT. In order to earn a profit of Rs. 200 per MT, he takes a sell/short position in March Wheat futures at Rs. 11,800 per MT and buy/long position in May Wheat futures at Rs. 11,600 per MT. Here, the trader neither have any physical position of Wheat nor indent to have so, but just makes profit with the price difference of Wheat futures between two contracts.

### **Arbitrageurs**

Arbitrageurs are another type of persons who participate with an aim to earn profit from the price differences prevailing in two markets known as the arbitrage oppority. This type of participants usually buy the commodity from one market with a lower price and sell it in another market where the price is high, thereby making a profit from the price difference. Arbitrageurs are also termed as risk lovers or risk takers similar to that of Speculators but at a lesser level. Arbitrageurs perform trading with no intention to hold the commodities. The role of arbitrageurs brings in price stability between various markets of an asset/commodity. They also act as the counterparty for hedgers and brings in liquidity to the market.

Example for arbitrage A trader, trades in Wheat in different markets. He checks the May Wheat futures prices in MCX and NCDEX where, he finds that May Wheat futures of MCX trades at Rs. 11,600 per MT and May Wheat futures of NCDEX trades at Rs. 11,610 per MT. In order to earn profit from this Rs. 10 per MT price difference between these exchanges, the trader takes a buy/long position of May Wheat futures in MCX and sell/short position of May Wheat futures in NCDEX. This act of the trader is known as arbitrage and this type of traders are known as arbitrageurs.

## Difference between Hedgers, Speculators and Arbitrageurs

**Table 2.1 Difference between Hedgers, Speculators and Arbitrageurs**

Basis of Comparison	Hedgers	Speculators	Arbitrageurs
Who is it?	People performing Hedging function	People performing Speculation function	People taking advantage of Arbitrage Opportunity
Objective	They trade to mitigate their risk	They trade to earn profit	They trade to earn a profit
Risk terminology	They are known as Risk averters	They are known as Risk takers / Risk lovers	They are known as Risk lovers / Risktakers
Role	Main player for whom the market exists.	They bring in liquidity to the market	They bring in price stability in the market
Trading Strategy	Takes the opposite position of what they actually have to hedge their risk	Takes two opposite positions to take advantage of price changes	Takes two opposite positions in a different market so as to make a profit from price differences

### Market Makers

Market makers are participants who are basically an institute or individual who quotes both buy and sell prices of commodities hoping to make a profit from the bidask spread. The market maker can also be a member of the exchange who buys and sells assets on a regular and continuous basis for a publicly quoted price thereby bringing liquidity to the market. The market makers can trade for their own purpose known as the principal trades or for its clients known as the agency trades. Most types of market makers are brokerage houses that performs buy and sell orders for their client for which they charge a commission. They can also be referred to as a market intermediary. They deal with large volume of trades enabling a smooth flow in the market. The market makers have a set of regulations to be followed which varies from exchange to exchange and its segments.

Any market is futile without proper participants. Similarly, the commodity market also requires many participants with different investment objectives and risk profiles to make the market function effectively. Most of the participants fall under three broader categories of hedgers, speculators, and arbitrageurs. The hedgers are the prime participants of the commodity market whose aim is to mitigate/hedge his risk generally known as risk averse investors. The speculators and arbitrageurs are other types of participants who are willing to take up risk with an aim to earn profit from it. They are termed as risk lovers/risk takers who act as the counterparty of hedgers. Apart from these three-market participants, there is another important market participant known as the market makers who are generally a firm or individual. They quote both buy and sell order at different prices thereby earning profit from the bidask spread of the trade. They are usually brokerage firms or members of the exchange who brings in market liquidity by trading regularly and continuously. Knowing about the market participants allows us to get in-depth knowledge about the market.

### **To Do Activity**

Each student can meet one commodity investor and interrogate about their aim and experience of commodity trading. Then the class can combine all responses and classify the investors under the above discussed four market participants.

## **2.4 Commodity as Investment Tool**

The commodity touches each and every citizen of any nation either as a producer or a consumer. This makes the role of commodity a vital part of one's life. Derivatives help in mitigating price risk of commodities which is the main treat for everyone. Apart from mitigating risk, commodity derivatives are also used as an investment tool by market participants. This focuses on a briefing about the commodity as an investment avenue, its merits and demerits by covering topics such as

- Commodity An Investment tool
- Advantages and Disadvantages
- Methods of using commodity as an investment tool.

### **Commodity an Investment Tool**

Most of the commodities were generally used for consumption purpose over centuries. But there are some commodities such as precious metals that were also used for savings purpose. In ancient days the precious metals such as Gold and Silver were used as the medium of exchange (i.e.,) money for trading other consumer goods. Thus saving these metals for future needs was also done. Later introduction of paper money eradicated these metals acting as money, but their value did not decrease due to its wide economical usage. Instead, the value of Gold and Silver is increasing day-by-day making them a good investment instrument. The present day commodity market has paved way for widening the investment opportunity to other commodities as well. But, the food crops are still regulated by the Governments to safeguard economic stability and thereby keeping them away from investment. Commodities are not like shares or bonds that pay dividend or interest in holding them. The usual returns from commodities are only by means of capital gains. But, in inverted market condition, the commodities will earn a premium upon holding them known as the convenience yield which is also to be considered as commodity return. The derivatives provide leverage for the investors of the commodity to buy the desired commodity by paying a token amount known as the initial margin rather than investing a huge amount on taking the position. This makes the commodity derivatives an attractive investment tool.

### **Advantages of Investing in Commodities**

Investors invest wholly or partly in commodities for various benefits such as

#### **1) Leverage**

The important advantage of using commodity derivatives for investment is the leverage provided by them. If an investor has to buy 100 grams of Gold, he would have to incur a huge amount for investment whereas if he buys the same 100 grams through Gold futures he will pay only a fraction of the entire amount (i.e.,) 10% of the contract value but will get the same returns as that of the former. This leverage of derivatives helps the investor to invest a smaller amount to make a bigger trade than his resources. These bigger trades will give the investor an opportunity to earn more returns.

## 2) **Liquidity**

Another advantage of investing in commodity derivatives is the liquidity provided by them. The commodity derivatives are traded on exchanges that provide a guarantee to liquidate the asset easily and quickly than that of physical assets such as land or building. This liquidity helps investors to realize their investments in urgent needs.

## 3) **Diversification**

Commodities are always an excellent avenue for diversification as it shows low correlation or negative correlation with other assets such as shares and bonds. By including commodity futures in the portfolio an investor can earn a higher return as the need and importance of commodities will never be zero. Diversifying one's investment through Gold has been in existence over years and due to the advancements in commodity markets, the use of derivatives has gained interest.

## 4) **Hedge Against Inflation**

Inflation is always being the main threat for all. The inflation usually refers to an increase in commodity prices (i.e.,) the inflation rate is generally determined by the commodity prices. Therefore, by investing in commodities it will be easy to hedge against inflation. Commodity derivatives through its price discovery function help the investors to better mitigate future inflation also.

## 5) **Free from Risks of Physical Handling**

The holding of physical commodities has certain risks and a cost which may reduce the return out of it whereas, investing through commodity derivatives overcomes these issues. For instance, if an investor buys 100 grams of Gold in physical form, he has a threat of theft and for its safety, he has to incur a cost. But if the investor buys the same through Gold futures, he can own the gold in a dematerialized form which will be reflected in his Demat account and will have all advantage of holding the physical gold without the threat of theft.

### **Disadvantages of Investing in Commodities**

As there are certain advantages in commodity investments, there are also some disadvantages which are as follows

#### 1) **Return Only from Capital Gain**

The commodities are not like shares or bonds to give a regular return of dividend or interest on their investment apart from their capital gains. The investments in commodities will be fruitful only if there is a price rise which is unassured. If the commodity prices go against expectation, the loss will be higher than any other assets. Thus, an investor must be cautious about their investment decision regarding commodities.

#### 2) **Long Term Investments Are Not Possible**

The physical commodities can be bought and held for a longer period, whereas the commodity derivatives cannot be held for a longer period as all the contracts have an expiry. Though the contract positions can be rolled over to next contract on expiry of the previous (i.e.,) offsetting the current contract position and taking up the same position in the next near month contract, incurs cost and skill which is impractical for a small investor. Though the regulator has brought a dematerialized form of commodities, it is hard to carry them for investment purpose over a longer period when compared to other financial assets.

## Methods of Using Commodity as Investment Tool

Investing is usually considered as a skillful act to maximize return, that too the commodity derivatives are an emerging investment avenue which needs extra skill to manage them. Commonly investing in commodities is done in two ways

- 1) Individual investment
- 2) Mutual fund investment

### 1) Individual Investment

The investors who are good at market prediction or willing to take a risk making a portfolio investment including commodities in them. To facilitate these types of investors, the commodity exchanges are introducing new commodity futures contract with a lesser lot size. Though these investors enjoy advantages such as diversification and return enhancement, they also have to admit the disadvantage of locking up a major portion of their investment in commodities compared to other assets.

### 2) Mutual Fund Investment

Many small investors who are not that skillful to make individual investments or risk averse, prefers mutual funds for their investment. Nowadays there are many mutual fund companies coming out with commodity funds which are managed and tracked by expert fund managers who choose better performing commodities into a portfolio and invest on behalf of their clients. The mutual funds can be an exclusive commodity fund or a fund comprising commodity in its portfolio. Mutual fund investment reduces risk and earns returns for small investors for their little investments.

Commodities such as Gold and Silver are considered for investments over centuries whereas, the commodity derivatives are an emerging investment avenue that provides leverage, liquidity, diversification, return enhancement, hedge against inflation and free from risks of physical handling. Besides, the commodity derivatives being an attractive investment tool cannot be held for a longer period and earns only out of capital gain. Commodity investments are commonly done by individuals or mutual fund managers.

## 2.5 Return and Volatility of Commodity and its Hedging

The previous covered upon the basis of using commodity as an investment avenue. But the key point of selecting any investment avenue depends on its return and risk aspects. By determining the return and risk of commodities, an investor can make a better investment decision. This is framed to cover this portion by giving insights about the calculation of return and risk of the commodities. Further, this also aims at providing knowledge about the return correlation between various commodities which helps in building a portfolio. Thus, the topics covered in this are

- Commodity Return Calculation
- Commodity Volatility Calculation
- Commodity Return Correlation
- Commodity Hedging

### Commodity Return Calculation

Return is the main aspect of an investment avenue that every investor is concerned about. Return is termed as the reward for investment. As said in the previous , the commodity will generate return only through the form of price appreciation known as the Capital Gain. Thus, in general, the return

from a commodity is determined as the difference between purchase price and selling price of that commodity.

**Return of Commodity = Selling Price of the Commodity - Buying Price of the Commodity.**

For instance, if an investor buys 10 grams of Gold @ Rs.2,000/ per gram in 2010 and sells it in December 2018 @ Rs.3,100/ per gram, he would earn a profit or return of Rs.1,100/ (Rs.3,100 - Rs.2,000) per gram.

This is admissible for a physical holding of the commodity but when it comes to a commodity future the investor has to hit the market at the right time to earn a return as most of the investors do not intend to give or take delivery of the commodity (i.e.,) they are either speculators or arbitrageurs. Thus, for such situations, the commodity returns are determined as the proportion of change in the current day's futures price to the previous day's futures price.

$$\text{Commodity Futures Return, CFR} = \frac{FP_t - FP_{t-1}}{FP_{t-1}}$$

Where, *FP* is Futures Price of a commodity and *t* is the trading day.

Similarly, the return of a portfolio made out of various commodities can be determined as the weighted sum of selected commodity's returns

$$\text{Commodity Portfolio Return} = \sum_{i=1}^n \text{CFR}_i \times W_i$$

Where, *CR<sub>i</sub>* is the commodity return of *i* commodity, *w<sub>i</sub>* is the weight of *i* commodity in the portfolio, *i* refers to the commodity and *n* refers the number of commodities included for the portfolio.

**Example**

The following Table gives the futures price of Castor Seed over a period of 15 days. Calculate its daily return.

**Table 2.2 Castor Seed Futures Prices**

Date	Castor Seed Futures Price
1Dec15	3,847.00
2Dec15	3,849.00
3Dec15	3,853.00
4Dec15	3,855.00
7Dec15	3,841.00
8Dec15	3,815.00
9Dec15	3,663.00
10Dec15	3,731.00
11Dec15	3,770.00
14Dec15	3,836.00
15Dec15	3,862.00

## Solution

The return of Castor Seed can be calculated as follows

$$\text{Castor Seed Futures Return} = \frac{FP_t - FP_{t-1}}{FP_{t-1}} \text{ in Column 3}$$

$$\text{Castor Seeds Futures Return} = \ln ( FV_t / FV_{t1} ) \text{ in Column 4}$$

**Table 2.3 Castor Seed Futures Returns**

Date	Futures Price	Actual Return	Log Return
		$\frac{FP_t - FP_{t-1}}{FP_{t-1}}$	$\ln ( FV_t / FV_{t1} )$
1Dec15	3,847.00		
2Dec15	3,849.00	0.0005	0.0005
3Dec15	3,853.00	0.0010	0.0010
4Dec15	3,855.00	0.0005	0.0005
7Dec15	3,841.00	0.0036	0.0036
8Dec15	3,815.00	0.0068	0.0068
9Dec15	3,663.00	0.0398	0.0407
10Dec15	3,731.00	0.0186	0.0184
11Dec15	3,770.00	0.0105	0.0104
14Dec15	3,836.00	0.0175	0.0174
15Dec15	3,862.00	0.0068	0.0068

The daily returns calculated from 1<sup>st</sup> December 2015 to 15<sup>th</sup> December 2015 shows a negligible difference between the two methods of return calculation and for research studies the log return is widely used so as to generalize the result.

### Commodity Volatility Calculation

Besides return, the risk is another important aspect of an investment avenue. The major risk associated with trading is the risk of price change or fluctuation which is commonly referred to as volatility. Thus, volatility measures the variability in prices away from the central tendency. In this respect, it is to be clearly noted that volatility simply measures the deviation from mean and not its direction. When the price deviations are more, then the risk of loss is also higher. Any riskaverse investor is keen about volatility than return. The volatility can be measured in various ways that can be broadly classified into two

- 1) Historical Volatility
- 2) Implied Volatility

#### 1. Historical Volatility

Historical volatility measures the volatility as the deviation from past prices which is a common way of determining the volatility of a commodity. The historical volatility of the commodity can be captured by a simple standard deviation of the prices by following the steps as under



- (i). First, the Return series of the commodity is computed for the entire period of volatility by

$$\text{Commodity Return, } CR = \ln(CP_t / CP_{t1})$$

Where,  $CP_t$  is the commodity price on day t,  $CP_{t1}$  is the commodity price on day t1,  $\ln$  is the natural logarithmic term. [Note for a generalized result logarithmic value is appropriate]

- (ii). Then, the return series is averaged to get the mean return

$$\overline{CR} = \frac{\sum_{t=1}^n CR_t}{n}$$

Where,  $\sum_{t=1}^n$  is the summation term for n days,  $CR_t$  is the commodity return

- (iii). Then, the difference of individual days return from the mean return is computed followed by the computation of the variance of return as,

$$\sigma_n^2 = \frac{1}{(n-1)} \times \sum_{t=1}^n (CR_t - \overline{CR})^2$$

Where,  $CR_t$  is the daily commodity return on day t,  $\overline{CR}$  is the average commodity return, n is the number of days,  $\sum_{t=1}^n$  is the summation term for n days.

- (iv). As volatility is measured through the standard deviation of commodity returns, the variance value is taken the square root,

$$\sigma_n = \sqrt{\sigma_n^2}$$

Volatility is generally expressed in an annualized figure. Thus, the commodity volatility computed on daily basis or weekly basis or converted into annualized by multiplying the volatility value with the square root of trading days. In case the volatility is computed on daily data for one year, the volatility value is multiplied with the square root of 305, as trading days of commodity market in a year is 305, whereas the volatility is computed on weekly basis then the volatility value is multiplied with the square root of 52.

1. The Annualized Commodity volatility on daily basis = Daily Commodity volatility  $\times \sqrt{305}$
2. The Annualized Commodity volatility on weekly basis = Weekly Commodity volatility  $\times \sqrt{52}$

### Example

The following Table gives the futures value of Castor Seed over a period of 15 days. Calculate its volatility and annualize it.

**Table 2.4 Castor Seed Futures Prices**

Date	Castor Seed Futures Price
1Dec15	3,847.00
2Dec15	3,849.00
3Dec15	3,853.00
4Dec15	3,855.00
7Dec15	3,841.00
8Dec15	3,815.00
9Dec15	3,663.00
10Dec15	3,731.00
11Dec15	3,770.00
14Dec15	3,836.00
15Dec15	3,862.00

**Solution**

The Volatility of Castor Seed Futures is calculated by;  $\sigma_n = \sqrt{\frac{1}{(n-1)} \times \sum_{t=1}^n (FR_t - \overline{FR})^2}$

**Table 2.5 Castor Seed Futures Volatility**

Date	Castor Seed Futures Price	Log Return $\ln ( Fv_t / Fv_{t1} )$	$FR_t - \overline{FR}$	$(FR_t - \overline{FR})^2$
1Dec15	3847.00			
2Dec15	3849.00	0.0005	0.0001	1.71E08
3Dec15	3853.00	0.0010	0.0006	4.22E07
4Dec15	3855.00	0.0005	0.0001	1.68E08
7Dec15	3841.00	0.0036	0.0040	0.000016
8Dec15	3815.00	0.0068	0.0072	0.000052
9Dec15	3663.00	0.0407	0.0410	0.001685
10Dec15	3731.00	0.0184	0.0180	0.000324
11Dec15	3770.00	0.0104	0.0100	0.000100
14Dec15	3836.00	0.0174	0.0170	0.000288
15Dec15	3862.00	0.0068	0.0064	0.000041
	<b>Sum</b>	<b>0.0039</b>		<b>0.002506</b>
	<b>Average</b>	<b>0.0004</b>		

$$\begin{aligned} \sigma_n &= \sqrt{\frac{1}{(11-1)} \times 0.002506} \\ &= \sqrt{0.000251} \\ &= 0.0158 \end{aligned}$$

The Annualized volatility of Castor Seed is calculated as;

$$\begin{aligned}\text{Annualized volatility} &= \text{Daily Castor Seed volatility} \times \sqrt{305} \\ &= 0.0158 \times \sqrt{305} \\ &= 0.2759 \text{ (i.e.,) } 27.59\%\end{aligned}$$

Thus, the volatility of Castor Seed for a period of 11 days from 1<sup>st</sup> December 2015 to 15<sup>th</sup> December 2015 is 0.0158 and its annualized volatility is 27.59%.

As that of return, the volatility cannot be computed on daily basis, instead is calculated for a certain time period to say over a week or month or year. Generally, to estimate volatility close to close prices are used but to get more accurate results, some prefer to use open to close prices. Similarly, in averaging the returns, there are various methods such as simple average, moving average and exponentially weighted moving average. Some researchers also use model-free daily squared return and absolute return as a proxy for daily volatility instead of traditional volatility by the standard deviation. As the volatility cannot be constant over time and it carries past memories, many sophisticated time series models such as Autoregressive Conditional Heteroskedasticity (ARCH) and Generalised Autoregressive Conditional Heteroskedasticity (GARCH) are used to measure volatility of a commodity.

## 2. Implied Volatility

Implied volatility in contrast to the historical volatility does not depend upon the historical prices for measuring the volatility. Instead, works on a particular model relating the price and volatility of the commodity. Usually, the implied volatility is measured in options pricing through the Black-Scholes model where, the volatility is captured as the difference of Black-Scholes model (BSM) price and the market price of the options of the commodity. Thus, the implied volatility possesses a one-to-one relationship with the commodity price and volatility. The implied volatility is calculated by a reverse calculation technique after obtaining the commodity options price through (BSM). The historical volatility gives insight about the past fluctuation of commodity prices whereas, the implied volatility is used to measure the market's expectation about the future volatility of the commodity price thereby making it a forward-looking one.

### Commodity Return Correlation

Commodities' demand and supply determine its price which in turn determines its return. These commodity returns are not independent as the commodity returns are calculated based on two consequent day commodity prices. This results in some relationship between two returns (i.e.,) current day's commodity return will be correlated with the previous day's commodity return irrespective of the percentage. This correlation is termed as serial correlation in time series data which is always the main issue affecting its future prediction. Time series models such as Lagrange Multiplier (LM) test helps in finding out the serial correlation in a time series data and the Autoregressive (AR) model helps in rectifying serial correlation problem in time series modelling.

The commodities are not necessarily demanded independent purpose. Many commodities act as substitute goods or complementary goods for other commodities. Thus, the price and demand of one affect the other resulting in a correlation relationship among these commodity prices. While

trading commodity futures, the possibility of hedging against the same commodity is not possible in developing markets like an Indian commodity market. This paves way for the cross-hedging possibility in the market. The supplementary nature, complementary nature and crosshedging possibilities of commodities lead to a correlation relationship between commodities' prices and commodities' returns. Many investors use this correlation information to perform crosshedging or to build up an effective portfolio. The correlation between commodity prices and commodity returns can be obtained by the general Pearson's correlation formula

$$r = \frac{\sum XY}{\sqrt{\sum X^2 \times \sum Y^2}}$$

Where, r is the Pearson's correlation coefficient,  $X = (x - \bar{x})$  (i.e.,) the original return series of x variable is subtracted by the mean of the x series, similarly,  $Y = (y - \bar{y})$  (i.e.,) the y variable series is subtracted by the mean of the y series.

### Commodity Hedging

Commodities are an essential part of one's life. Due to various internal and external factors, the price of the commodities is always fluctuating. Many a time its future prices are unpredictable that threatens the consumers. The disturbances in commodity prices cannot be minimized or arrested but the risk occurred on the price disturbance can be arrested through fixing up future commodity price which is known as hedging. The derivatives help in hedging the commodity price risk. Commodity hedging helps commodity traders to reduce their risk and increase their return. The commodity hedging can be done in two ways, such as direct hedging and cross hedging.

**Direct Commodity Hedging** it is the one where the commodity to be hedged is taken a derivative position in the same commodity.

**Cross commodity Hedging** it is the one where the commodity to be hedged is taken a derivative position in a related commodity. This is usually done when there is no derivative instrument on the commodity to be hedged. For example, the Jet airways who is in need of jet fuel for its aircrafts cannot hedge its risk directly as there is no jet fuels contract trading in Indian commodity exchanges, thus, Jet airways may use crude oil contracts so as to hedge its portion of risk.

Return and risk are the two major factors that any trader or investor is concerned about an asset and the commodities are not an exception to this. Commodities, unlike stocks or bonds, earn return only from the capital gain (i.e.,) there is no dividend or interest for commodities. Thereby the calculation of return upon commodity investment is nothing but the difference between the selling price and buying price. When this return is computed on daily basis, the commodity return is calculated as the proportion of changes in today's price with regards to the previous day's price. The Volatility of commodity prices contributes to the risk of the commodities which generally measures the variability of commodity price from its central tendency. The volatility is broadly classified as two types, one is the historical volatility and another one is the implied volatility. The historical volatility depends upon past commodity price movement which is calculated using the standard deviation. The implied volatility explains the expectation of market in commodity pricing making it a forwardlooking one which is highly used in commodity options pricing. Unlike other financial assets, commodities are used for various purposes that influence their return and risk. These influence brings in a return correlation in commodities either by other commodities or other variables. The

knowledge about the return, risk, and correlation of a commodity helps in better trading or investment decision on that commodity. The unexpected changes in commodity prices due to various internal and external factors affect the true trader of the commodities. The commodity derivatives help them in mitigating their risk commonly known as the commodity hedging which is covered extensively in the following s.

#### **To Do Activity**

Students can take up individual commodity as per their wish and try calculating the return and volatility for them. Later, discuss them in class compared with the similar information given by the exchanges and their reasons.

#### **Case Study**

Mr. Murthi is a farmer who grows Turmeric in a village in Tamilnadu. He usually sells his produce in the Government Mandi. His son Mr. Raghu who is an MBA graduate suggests him to trade in the commodity market by explaining about the merits of trading and the higher earnings that could be earned for Murthi's produce. Murthi initially ignores his son's suggestion but that year he couldn't realize the expected price for his produce which left Murthi in a condition not able to repay his debts. Then Murthi thought of his son's suggestion and wished to make a try. Before starting to trade in commodity market Murthi asked for an opinion to his friend who suggested not to take any risk from an unknown source. This left Murthi in confusion.

- a) What would you suggest Murthi do either continue with trading in local mandi or to go for Commodity market?
- b) If you suggest trading in Commodity Market point out the merits of trading in it.

#### **Model Questions**

1. Explain the evolution of commodity market including India.
2. Brief about the importance and functions of commodity exchanges in the Indian commodity market.
3. Explain the various commodity exchanges in India.
4. Point out the milestones of Indian commodity exchanges
5. How is commodity considered as an investment avenue?
6. What is Commodity return correlation?
7. Brief about the concept of commodity hedging

# Chapter 3 Commodity Indices

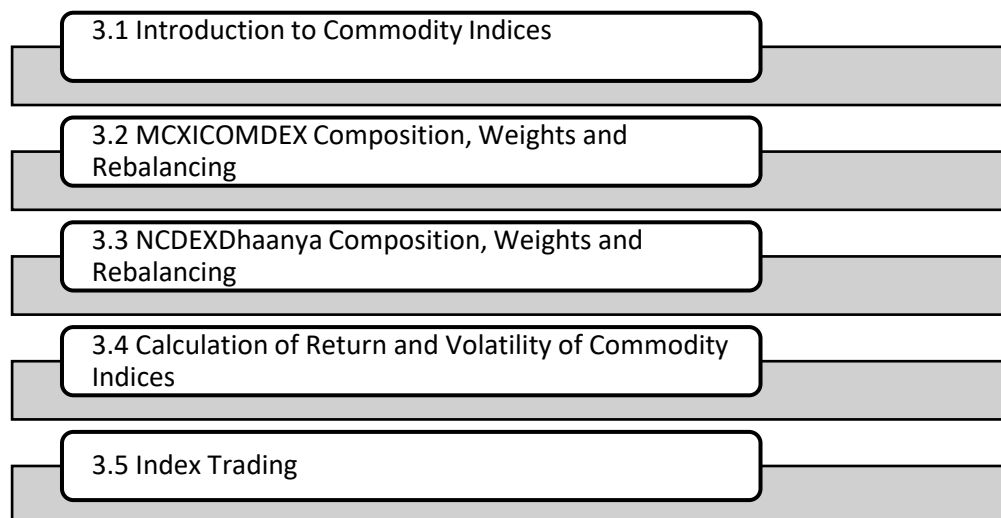
## Introduction

Commodity exchanges act as a platform for commodities and commodity derivatives to trade. These exchanges do appraisal on commodity trading to know about their performance and examining each and every commodity's trade is complex to understand. Thus, to give and get an easy and simple outlook of the market, these exchanges develop indices that act as their trading guide. The growing importance and use of commodity indices in commodity trading make it a vital one to know about. The third Chapter covers widely about the topics on commodity indices.

## Objectives

- To introduce about commodity index.
- To elaborate about index calculation and related concepts.
- To brief about the MultiCommodity Exchange of India (MCX) indices and National Commodity and Derivatives Exchange Limited (NCDEX) index.
- To elaborate about the calculation of return and volatility of commodity index.
- To explain about the index trading.

## Structure



## 3.1 Introduction to Commodity Indices

Market participants are always eager to know about the market movement and performance. But it is hard for them to analyze all commodities traded on an exchange to know the commodity market performance. Thus, the concept of the Index has emerged as an indication of the market. Index acts as a barometer of the market. This importance makes it essential to know about the commodity indices which is the focus of this Chapter starting with its introduction in this section. The contents to be covered in this are

- Commodity Indices
- Index calculation methodology
- Index Weights
- Rolling of Index

## Commodity Indices

Index, in general, is a portfolio of assets of the same financial class acting as a representation of the performance of that asset class. Similarly, a commodity index is a basket of commodities that represent their price and return performance. Across the globe, there are many commodity exchanges that trade commodities in both spot and futures markets and so, the commodity indices are available in both the spot and futures market. But, in India, the commodity exchanges trade only derivative products of commodities and so commodity futures indices are only available as of now. Even, the commodity options trading in India is also done based on the underlying commodity futures, thus, knowing about the commodity futures performance is essential. Though index trading is permitted in leading commodity exchanges it is not allowed in India. The Indian commodity indices just act as the barometer or representation of the commodities traded in exchanges. Indian commodity market has two major commodity indices, such as; Thomson Reuters MCX iCOMDEX composite of Multi Commodity Exchange of India Limited (MCX) which is a multicommodity index that acts as a barometer for Indian commodity market and Dhaanya of National Commodity Derivatives Exchange Limited (NCDEX) which is an agricultural commodity index that acts as a barometer for Indian agricultural commodity market.

## Index Calculation Methodology

Each and every commodity index is a basket of commodities futures. Every exchange has a special committee to track, inspect and determine the constituents of the index. The index is mainly calculated based on two aspects

- I. Selection of Commodities
- II. Weightage of the commodities

### I. Selection of Commodities

The commodity index is a collective representation of commodities. Thus, the value of index depends upon the constituent commodities of that index which makes it important for the index framing committee to choose the commodities with utmost care.

- Initially, the index framing committee selects the commodity groups (e.g., bullions or metals or energy or agricultural, etc.) that constitute the index based on their economic influence and trade in that exchange.
- After the selection of commodity groups, individual commodities are selected based upon their trade volume or internal guidelines of the exchange. Either the entire commodities under the selected commodity group or specific commodities are considered for framing the index.
- Once, the commodity groups and commodities are selected, the next step is the selection of contracts to be used for the calculation of the index. For example, Gold futures may have 3 futures contract open for trade during a point of time. The committee has to decide either to select one contract of Gold or all the three contracts of Gold for index calculation. Usually, near month contracts are considered, as they are highly liquid among all open contracts of any commodity which upon expiry shifts to the next near month contract is known as rollover mechanism that is to be seen in detail in further sections of this .

- Once the selection of commodities is finalized then comes the concept of weight allocation to the commodities.

## II. Weightage of The Commodities

The index framing committee that is responsible for determining the constituent commodities of the index is also responsible for the determination of commodity weights. Weightage means the proportion that a commodity is to have in determining the index. For example; if Gold is given 10% weightage, it means the changes in Gold futures will affect 10% change in Index. The weights are determined for the individual commodity futures contract based on any of the following ways

- a) Weights based on production
- b) Weights based on liquidity
- c) Weights based on both world production and liquidity
- d) Equal weights

### a) Weights Based on Production

This method of weightage determination uses the production volume of the commodities in the nation as the production explains the economic significance of the commodity. The volume of national production in the current year or during some aberrations, the last few years' average volume of production is considered for weightage determination. The commodity with higher volume is given higher weightage.

### b) Weights Based on Liquidity

This method of weightage determination uses the trading volume of the selected commodity's futures contract traded on the exchange. Based on this, the commodity with high trading volume is considered liquid and allotted higher weightage. Usually, current year trading volume is considered and, in some aberrations, historical trading volume is considered.

### c) Weights Based on Both Production and Liquidity

This is an advanced method of weight allocation which combines both production volume and trading volume of the selected commodities to determine their weights (i.e.,) both the economic significance of the commodity and its liquidity is considered for weight allocation. The commodity with higher production volume and trading volume are given higher weight (i.e.,) the commodity with higher world production volume but lesser trading volume will not be allocated higher weight or vice versa. This method arrived to overcome the drawback of underestimating the commodities economic significance while recording their trading volume.

### d) Equal Weights

This method of weight determination is the easiest way of weight allocation. In this method, all the selected commodities are given equal weights (i.e.,) all commodities are given equal proportion to determine the index. In this method, no other information about the commodities are to be considered.



Every index framing committee has a determined period after which the index is rebalanced with a new set of selected commodities and weights. This rebalancing is done to keep index updated to that of the market.

### Rolling of Index

Unlike Stock Indices, the commodity indices differ in its underlying. The commodity indices are framed based on the commodity futures contracts that have a date of expiry. So the commodity indices have to be continuous, thus to overcome this issue the concept of rollover is introduced. Rollover means the prices considered upon one contract shifts to the next expiry contract upon the expiry of the former. The transmission of price determination is done in a systematic way and the duration taken for it is known as the rolling period. The exchange decides the rolling period for determining the index. The transmission takes place in such a way that, before the rolling period only the near month futures contract price is considered for index determination, then during the rolling period both near month futures contract and succeeding near month futures contract prices are considered in a predetermined pattern for index determination and finally after the rolling period, only the succeeding near month futures contract price is considered.

### Example

An index committee sets 12<sup>th</sup> to 15<sup>th</sup> working day of every month as the rolling period for an index. The index rolls over by 20% from one contract to another contract each day (i.e.,) on the 12<sup>th</sup> day, the index is calculated considering 80% of the near month futures contract price and 20% of the succeeding near month futures contract price. This 80:20 proportion is rolled over to 60:40 break up between the near month futures contract and succeeding near month futures contract on the 13<sup>th</sup> day. Then it becomes 40:60 break up on the 14<sup>th</sup> day and 20:80 break up on the 15<sup>th</sup> day. On the 16<sup>th</sup> day, the index is calculated 100% based on the near month futures contract price and on the 17<sup>th</sup> day with 100% consideration of succeeding near month futures contract price. Determine the commodity prices to be considered for Index determination if the near month futures contract and succeeding near month futures contract prices of the commodity from 11<sup>th</sup> day to 16<sup>th</sup> day of a month are as given below.

**Table 3.1. Commodity Futures Prices**

Day	Near Month Futures Contract Prices	Succeeding Near Month Futures Contract Prices
11 <sup>th</sup>	2,200	2,250
12 <sup>th</sup>	2,210	2,258
13 <sup>th</sup>	2,204	2,254
14 <sup>th</sup>	2,198	2,249
15 <sup>th</sup>	2,192	2,244
16 <sup>th</sup>	2,188	2,238

### Solution

$$\begin{aligned}
 \text{Price on 11}^{\text{th}} \text{ day} &= 100\% \text{ of Near Month Futures contract price} \\
 &= 100\% \text{ of Rs.2,200} \\
 &= \text{Rs. 2,200}
 \end{aligned}$$

Price on 12 <sup>th</sup> day	=	80% of Near Month Futures contract price and 20% of Succeeding Near Month Futures contract price
	=	$(2,210) \times 80\% + (2,258) \times 20\%$
	=	$1,768 + 451.6$
	=	Rs. 2,219.6
Price on 13 <sup>th</sup> day	=	60% of Near Month Futures contract price and 40% of Succeeding Near Month Futures contract price
	=	$(2,204) \times 60\% + (2,254) \times 40\%$
	=	$1,322.4 + 901.6$
	=	Rs. 2,224
Price on 14 <sup>th</sup> day	=	40% of Near Month Futures contract price and 60% of Succeeding Near Month Futures contract price
	=	$(2,198) \times 40\% + (2,249) \times 60\%$
	=	$879.2 + 1,349.4$
	=	Rs. 2,228.6
Price on 15 <sup>th</sup> day	=	20% of Near Month Futures contract price and 80% of Succeeding Near Month Futures contract price
	=	$(2,192) \times 20\% + (2,244) \times 80\%$
	=	$438.4 + 1,795.2$
	=	Rs. 2,233.6
Price on 16 <sup>th</sup> day	=	100% of Succeeding Near Month Futures contract price
	=	100% of Rs.2,238
	=	Rs. 2,238

Thus, the index is determined based on these calculated prices of the commodity and its weightage in the index. Point to be noted in rolling the index is that all contracts of an exchange may not expire on the same day of a month. In this situation, the index framing committee determines the rolling period and the system of rolling that applies while the contracts are expiring. For example, a commodity contract expires on the 5<sup>th</sup> day of a month, whereas another commodity contract expires on the 15<sup>th</sup> day of a month and another commodity contract expiring on the 25<sup>th</sup> day of a month. If the committees have fixed the rolling period as 4 days, then the 1<sup>st</sup> commodity's price starts to roll from the 2<sup>nd</sup> day of the month, whereas the 2<sup>nd</sup> commodity's price starts to roll from the 12<sup>th</sup> day of the month and the 3<sup>rd</sup> commodity's price starts to roll from the 22<sup>nd</sup> day of the month. Thus, for different commodities, there will be different rollover dates depending upon the contract maturity dates but the rolling over mechanism remains same.

### Commodity Index Calculation without Rollover

Some commodity indices consider all open futures contract available during the period to determine the index value, where the rollover mechanism cannot be applied or not needed. Thus, these indices simply consider the average prices of the available futures contracts of a commodity as the price of that commodity.

#### Example

An index comprises of 5 commodities such as Castor Seed, Chana, Pepper, Turmeric and Wheat with contracts and prices as listed below.

	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>
<b>Castor Seed</b>	1,200	1,300	1,400		
<b>Chana</b>	2,005	2,100			
<b>Pepper</b>	2,998	3,211	3,624	3,766	3,900
<b>Turmeric</b>	1,110	1,234	1,316		
<b>Wheat</b>	3,100	3,160	3,210	3,277	3,300

What will be the prices of these commodities to be considered for index determination?

#### Solution

$$\text{Price of Castor seed} = \frac{1,200 + 1,300 + 1,400}{3} = \text{Rs. } 1,300$$

$$\text{Price of Chana} = \frac{2,005 + 2,100}{2} = \text{Rs. } 2,052.5$$

$$\text{Price of Pepper} = \frac{2,998 + 3,211 + 3,624 + 3,766 + 3,900}{5} = \text{Rs. } 3,499.8$$

$$\text{Price of Turmeric} = \frac{1,110 + 1,234 + 1,316}{3} = \text{Rs. } 1,220$$

$$\text{Price of Wheat} = \frac{3,100 + 3,160 + 3,210 + 3,277 + 3,300}{5} = \text{Rs. } 3,209.4$$

Thus, the simple average of the futures prices is calculated and these prices are considered as the commodities prices.

The commodity index is a portfolio of commodities that represent the performance of the commodity market. The major two commodity indices of Indian commodity derivatives market are Thomson Reuters MCX ICOMDEX Composite and NCDEX Dhaanya which are covered in detail in the next two s. As only futures contracts are traded in exchanges and even they are the underlying asset for options contract in India, the Indian commodity indices comprise only the commodity futures contracts. The commodity indices are calculated mainly based on the commodity selection and their weight allocation. The indices may consider commodities weights based upon either production/liquidity or both or equal weights. The commodities are selected usually under three parts, first, the commodity group, second the commodities within the group and third the contracts

of that commodities. The futures contracts are prone to expiry, thus, to make a continuous index series, the rollover mechanism is adopted for calculating the commodity prices. In case of inapplicability of rollover mechanism, the simple average of all available contract prices are considered as the commodity prices.

### **3.2 Micro medex Composition, Weights and Rebalancing**

The commodity index represents the performance of a commodity exchange and acts as the benchmark for the commodity market. There are three national commodity exchanges in India among which MultiCommodity Exchange of India Limited (MCX) contributes 80% of the total trade volume. The importance of this commodity exchange also makes its index attractive for market participants to consider it as the barometer for the Indian commodity market. The flagship index of MCX was MCXCOMDEX which was later replaced by a cobranded index series of I COMDEX. This aims at providing insight about this index series by covering the topics such as

- About I COMDEX
- I COMDEX weights
- I COMDEX rebalancing
- I COMDEX calculation
- I COMDEX compositions

#### **About I Comdex Index Series**

The MCXCOMDEX was the maiden real-time composite commodity index of commodity futures traded on MCX platform, which was launched in 2005 with 2001 as its base year. The MCXCOMDEX was calculated as the weighted average of three sub-indices comprising of MCXMetal, MCXEnergy, and MCXAgri. With the development in commodity market regulation after the takeover by SEBI as the market regulator, MCX came out with making the index more reliably. To make the benchmark index better and to meet international standards, MCX partnered with Thomson Reuters in framing a new Index series. The index series is known as Thomson Reuters MCX India Commodity Indices (ICOMDEX). The flagship index of MCX, Thomson Reuters MCXICOMDEX Composite is the only index constituted up of multi commodities in India. The Thomson Reuters is responsible for calculating and validating the indices and MCX inspects it. The series of indices were launched on 26<sup>th</sup> September 2017 and the series consists of the following indices

- 1) Thomson Reuters MCXICOMDEX Composite Index
- 2) Thomson Reuters MCXICOMDEX Base Metals Index
- 3) Thomson Reuters MCXICOMDEX Bullion Index
- 4) Thomson Reuters MCXICOMDEX Gold Index
- 5) Thomson Reuters MCXICOMDEX Copper Index
- 6) Thomson Reuters MCXICOMDEX Crude Oil Index

#### **ICOMDEX Weight Composition**

The commodities that are part of the ICOMDEX composite and sectorial indices are selected based upon their Physical market size and liquidity in the following manner.

- 1) Physical market size of a commodity is determined based on the product of the quantity and daily futures price of that commodity, where, the quantity is the average of three years production and import of the commodity, the daily futures price is the average of that three years daily futures price.

- 2) Liquidity is determined as the average of three years daily turnover both in main and mini futures contract of the commodity.
- 3) The weights of the commodities are then determined by summing the physical market size with a 1/3<sup>rd</sup> weightage and the liquidity with 2/3<sup>rd</sup> weightage.
- 4) Once all commodities traded on MCX platform are weighted in the abovesaid manner, the commodity selection takes place. Any individual commodity with weight less than or equal to 0.75% is not considered for Index composition.

After the selection of commodities is done, they are allocated weights in the following manner.

- 1) In sectorial indices with more than 2 commodities, the individual commodity weight is capped at 40%.
- 2) Similarly, in the composite index, the total weight of one sector is capped at 40%.
- 3) Any individual commodity in the composite index must have a minimum weight of 2%.

### **ICOMDEX Rebalancing**

The rebalancing is done by the Index manager of Thomson Reuters with the reference of Index Advisory Group of both Thomson Reuters and MCX. ICOMDEX is rebalanced annually before the January rollover period for each and every individual commodity of the sectorial indices and the composite index. In case of any inclusion of new commodity in the indices, the commodity must have a trading history of atleast one year in MCX platform with a minimum average daily notional turnover of Rs.10 crores in its futures trading. The existing commodities must atleast comply 50% of the abovesaid threshold to continue in the Index at rebalancing.

### **ICOMDEX Calculation Methodology**

The Thomson Reuters MCXICOMDEX series are calculated based upon the excess return of the commodities. Each day's excess return is calculated with reference to the previous day and the calculation methodology of each index is as follows.

#### **1. The Individual Commodity Indices**

The individual commodity indices such as ICOMDEX Gold, ICOMDEX Copper and ICOMDEX Crude oil are calculated as

$$TRMER_t = TRMER_{t-1} \times \frac{CSR_t}{CSR_{t-1}}$$

Where,  $TRMER_t$  is the individual commodity excess return on day t and Index value for ICOMDEX Gold, ICOMDEX Copper and ICOMDEX Crude Oil,  $TRMER_{t1}$  is the individual commodity excess return on day t1,  $CSR_t$  is the price of futures contract of the commodity on day t,  $CSR_{t1}$  is the price of futures contract of the commodity on day t1.

The indices follow a rolling mechanism with a roll period of five days that occur five business days prior to the last two business days of each month, with the exposure rolled over at 20% each day. Thus, upon the fifth business day, 100% of index calculation is determined based on the futures price of immediate next near futures contract.

If the day t indicated above, falls outside the roll period, then;

$$CSR_t = FR_t \text{ (i.e.,) Futures price of near month contract on day t}$$

$CSR_{t1} = FR_{t1}$  (i.e.,) Futures price of near month contract on day t1

If the day t falls within the roll period then  $CSR_t =$  Weighted average price of near month futures contract price and next immediate near month futures contract price on day t.

$$(i.e.,) \quad CSR_t = \sum_{i=1}^2 DW_t^i \times FP_t^i$$

Where,  $\sum_{i=1}^2$  is the summation of nearmonth futures contract price and next immediate nearmonth futures contract price,  $DW_t^i$  is the daily roll weight for expiry month i on day t,  $FP_t^i$  is the futures price of futures contract expiring in month i on day t.

$$\text{Similarly for } CSR_{t-1} \text{ will be; } CSR_{t-1} = \sum_{i=1}^2 DW_{t-1}^i \times FP_{t-1}^i$$

Where,  $\sum_{i=1}^2$  is the summation of near month futures contract price and next immediate near month futures contract price,  $DW_t^i$  is the daily roll weight for expiry month i on day t,  $FP_{t-1}^i$  is the futures price of futures contract expiring in month i on day t1.

## 2. Sectorial and Composite Indices

The sectorial indices such as ICOMDEX Bullion and ICOMDEX Base Metals and the composite index, ICOMDEX composite are calculated as the weighted average of the excess return of their constituent commodities. Thus,

$$TRMCMP_t = TRMCMP_{t-1} \times \frac{\sum_{i=1}^n TRMER_t^i \times W^i}{\sum_{i=1}^n TRMER_{t-1}^i \times W^i}$$

Where,  $TRMCMP_t$  is the Sectorial or Composite index on day t,  $TRMCMP_{t1}$  is the Sectorial or Composite index on day t1,  $TRMER_t^i$  is the individual commodity excess return of i commodity on day t,  $TRMER_{t-1}^i$  is the individual commodity excess return of i commodity on day t1,  $W^i$  is the weight of i commodity and  $\sum_{i=1}^n$  is the summation of n commodities in the indices.

### ICOMDEX COMPOSITION

The composition of ICOMDEX series in 2018 are

- 1) Thomson Reuters MCX ICOMDEX composite consists of 11 commodities such as Crude oil, Natural gas, Aluminium, Copper, Lead, Nickel, Zinc, Gold, Silver, Crude Palm oil and Cotton.
- 2) Thomson Reuters MCX ICOMDEX Bullion consists of 2 commodities such as Gold and Silver.
- 3) Thomson Reuters MCX ICOMDEX Base Metal consists of 5 commodities such as Aluminium, Copper, Lead, Nickel and Zinc.
- 4) As the Thomson Reuters MCX ICOMDEX Gold, Thomson Reuters MCX ICOMDEX Copper and Thomson Reuters MCX ICOMDEX Crude oil are individual commodity indices, they consist solely of that commodity only.

MCX is the leading multicommodity exchange in India with various records in performance. Thus, its index is considered important by market participants to judge the Indian commodity market performance. The flagship index of MCX was COMDEX from 2005 which was replaced by ICOMDEX index series in 2017 after partnering with Thomson Reuters to make the MCX index meet international standards. As of 2018, there is one composite index, two sectorial indices and three individual commodity indices in MCX. The commodities are selected upon considering both the physical market size in India and liquidity in the MCX platform. The indices are calculated based on

the excess return of the commodities that is rebalanced annually. The knowledge about indices methodology provides the market participants to know about the proportion of market information captured by the indices, which gains their confidence in adopting the indices as the barometer of the Indian commodity market.

### **3.3 NCDEX Dhaanya Composition, Weights, and Rebalancing**

The last briefed about the indices in MultiCommodity Exchange of India Limited (MCX). Being multicommodity indices they effectively represent the Indian commodity market. But, India is primarily an agrarian economy whose roots are still strongly held in the agricultural sector. This gives importance for the development of an agricultural index which acts as a barometer of the Indian agricultural commodity market. Thus in the absence of any other index exclusively for agricultural commodities, the National Commodity Derivative Exchange Limited (NCDEX) though being a multicommodity exchange concentrates more in agricultural commodities and also introduced its flagship index 'Dhaanya' which comprises exclusively the agricultural commodities. Hence, Dhaanya becomes the benchmark index for agricultural commodities market which is highly useful for the Indian farmers in terms of price discovery. This focuses on providing insights about Dhaanya by covering the topics such as

- About Dhaanya
- Dhaanya Weights
- Dhaanya Rebalancing
- Dhaanya Calculation

#### **About Dhaanya**

Dhaanya is the benchmark index of National Commodity Derivatives Exchange Limited (NCDEX). The word Dhaanya is a Sanskrit word which means a bountiful crop or abundance of food grains or a state of plenty and prosperity. The index was launched on 3<sup>rd</sup> November 2010 with a base point of 1000. Dhaanya comprises only of agricultural commodities futures. It consists of 10 most liquid agricommodities traded on NCDEX platform. Dhaanya is computed and maintained by a separate committee of NCDEX.

#### **Dhaanya Weights**

The commodity selection for the index is based upon both economic significance and liquidity. The economic significance considers the annual production of the commodity in India multiplied by the commodity's price and liquidity is based on its one year traded volume. The commodities are assigned weights considering these two parameters equally (i.e.,) the national production is given 50% weightage and the liquidity is given 50% weightage.

Based on the weights obtained, the top ten commodities are selected to constitute the Dhaanya index. To make the index diversified the index maintenance committee ensures that commodities from various subsectors are included. Though Dhaanya fully represents agricultural commodities, there are subsectors in it such as oil and oilseeds, spices and others. It is also ensured that Dhaanya components account for 75% or more of the total agritrading on the NCDEX platform.

#### **Dhaanya Rebalancing**

Dhaanya index is a professionally maintained index by the index maintenance committee of NCDEX. The committee is responsible for daytoday monitoring and resolving issues of the index. The

rebalancing of the index is also done by this committee. Dhaanya components and their weights are rebalanced every three months based on the two parameters of national production value and traded volume.

### Dhaanya Calculation

Dhaanya is a simply calculated weighted index computed using the futures prices of the near month contracts of the selected commodities

$$Dhaanya = \sum_{i=1}^n FP_t^i \times W^i$$

Where,  $\sum_{i=1}^n$  is the summation of n commodities,  $FP_t^i$  is the futures price of i commodity on day t,  $W^i$  is the weight assigned for i commodity.

As the futures contract has an expiry and to have continuity in Dhaanya value, the rolling mechanism is used. The index is rolled over from the near month futures contract on to the next nearmonth futures contract of the commodity when the former approaches expiration that is done periodically by the index maintenance committee of NCDEX.

### Dhaanya Components

As of October 2018, the Dhaanya components and their respective weights are as follows

**Table 3.2 Dhaanya Components and Their Weights**

	<b>Commodity</b>	<b>Weight</b>
1	Castor Seed	10%
2	Cottonseed oilcake	8%
3	Rape seedMustard seed	15%
4	Soy Bean	16%
5	Coriander	3%
6	Jeera	5%
7	Turmeric	3%
8	Barley	1%
9	Chana	20%
10	Guar seed	20%

Source [www.ncdex.com](http://www.ncdex.com)

Dhaanya is the flagship index and an exclusive agricommodity index of NCDEX. It constitutes ten liquid agri commodities traded on NCDEX platform. Similar to ICOMDEX, Dhaanya components are also selected based upon the two parameters of economic significance and liquidity which are given equal importance in weight determination of the commodities. The Dhaanya index is calculated as a simple weighted summation of near month futures prices of the ten selected commodities. The Dhaanya index uses the rolling mechanism to provide a continuous representation of the market which is rebalanced every three months. Dhaanya is considered as the barometer of Indian agricultural commodities market that helps in knowing about the backbone sector of Indian economy (i.e.,) the agricultural sector. It can also be said that Dhaanya's growth projects the growth of rural India.



### 3.4 Calculation of Return and Volatility of Commodity Indices

The commodity index is considered as the barometer of the commodity market. In India, there are two major indices such as Thomson Reuters MCXICOMDEX composite and Dhaanya which are the flagship indices of the two major national exchanges, MCX and NCDEX respectively, whose details were discussed in the previous s. For any asset or financial instrument, two concepts are very important, one is its return and another is its risk/volatility. For the market participants and policy makers, Knowing the return and volatility of the indices is more important than knowing about the indices to have a rough estimate about the level of return and risk present in the commodity market. As of now, the commodity market regulator has not permitted trading in commodity indices. Thus, the Indian commodity indices project a combined return and volatility of their underlying commodities. To get a glimpse of the risk and return of the commodity market, it is enough to check the indices instead of calculating the return and volatility of individual commodities. This focuses on briefing out how the return and volatility are calculated for the index. The contents are

- Index Return Calculation
- Index Volatility Calculation

#### Index Return Calculation

Return generally means the reward that we get for our investments. As said earlier, index trading is not yet permitted in the Indian commodity market, thereby the commodity indices cannot be considered as an investment instrument. But, the market participants can use the index as a guide to their investment plan. The return projected from the index is also a representation of the returns from its underlying commodity futures. Globally, many commodity indices are traded and even in India, the regulators are working on the proposal of trading the commodity indices.

Return of an index can be calculated just like that of the commodity. Return of an index will be equal to the proportion of change in futures price to the previous day's futures price.

$$\text{Return of Index} = \frac{IV_t - IV_{t-1}}{IV_{t-1}}$$

Where,  $IV_t$  is the Index value on day t and  $IV_{t1}$  is the Index value on day t1

The natural logarithmic term gives a continuously compounded value and so return can also be calculated using the log as

$$\text{Return of Index} = \ln ( IV_t / IV_{t1} )$$

For a shorter period, the difference in returns calculated using log or actual returns will be negligible. But, for statistical examination of returns, the log series will be appropriate.

#### Example

The following Table gives the index value of Dhaanya over a period of 10 days. Calculate its daily return.

**Table 3.3 Dhaanya Closing Prices**

Date	Dhaanya closing price
1Nov18	3,359.07
2Nov18	3,394.69
5Nov18	3,460.49
6Nov18	3,489.22
7Nov18	3,473.17
9Nov18	3,499.04
12Nov18	3,544.06
13Nov18	3,537.98
14Nov18	3,521.54
15Nov18	3,530.33

**Solution**

The return of Dhaanya can be calculated as follows

$$\text{Dhaanya Return} = \frac{IV_t - IV_{t-1}}{IV_{t-1}} \text{ in Column 3, and}$$

$$\text{Dhaanya Return} = \ln ( IV_t / IV_{t1} ) \text{ in Column 4}$$

**Table 3.4 Dhaanya Returns**

Date	Dhaanya closing price	Actual return $\frac{IV_t - IV_{t-1}}{IV_{t-1}}$	Log return $\ln ( iv_t / iv_{t1} )$
1Nov18	3,359.07		
2Nov18	3,394.69	0.0106	0.0105
5Nov18	3,460.49	0.0194	0.0192
6Nov18	3,489.22	0.0083	0.0083
7Nov18	3,473.17	0.0046	0.0046
9Nov18	3,499.04	0.0074	0.0074
12Nov18	3,544.06	0.0129	0.0128
13Nov18	3,537.98	0.0017	0.0017
14Nov18	3,521.54	0.0046	0.0047
15Nov18	3,530.33	0.0025	0.0025

The daily returns calculated from 1<sup>st</sup> November 2018 to 15<sup>th</sup> November 2018 shows a negligible difference between the two methods of return calculation.

**Index Volatility Calculation**

The Volatility of an asset is generally a measure of the variability of that asset's return. The volatility of an asset is captured by the standard deviation of the asset's return. Similar to that of commodity index return, a commodity index volatility will also be a combined representation of the volatility of the underlying commodities futures contracts due to the lack of direct trading in Indian commodity indices. The volatility is generally calculated from the historical data that is known as Historical Volatility and most of the future predictions are drawn it. This makes the knowledge about the calculation of historical volatility important. Generally, the volatility cannot be obtained on daily

basis, it has to be calculated for a period of time such as weekly, monthly and yearly. For calculating the historical volatility of an index, the following information are essential.

1. The returns of the index are to be obtained first. Usually, the log of returns is considered.

$$\text{Index Return (IR)} = \ln ( IV_t / IV_{t1} )$$

Where,  $IV_t$  is the Index value on day t and  $IV_{t1}$  is the Index value on day t1.

2. Then the average return of the daily return series as per (i) is obtained by

$$\overline{IR} = \frac{\sum_{t=1}^n IR_t}{n}$$

Where,  $IR_t$  is the daily Index return on day t, n is the number of days,  $\sum_{t=1}^n$  is the summation term for n days.

3. Then, the variance of the daily index return is calculated by

$$\sigma_n^2 = \frac{1}{(n-1)} \times \sum_{t=1}^n (IR_t - \overline{IR})^2$$

Where,  $IR_t$  is the daily Index return on day t,  $\overline{IR}$  is the average daily Index return, n is the number of days and  $\sum_{t=1}^n$  is the summation term for n days.

4. Finally, volatility is the standard deviation of daily Index returns that can be obtained by taking square root of the Index variance as per (iii)

$$\sigma_n = \sqrt{\sigma_n^2}$$

The volatility is commonly expressed in the annualized figure and to convert volatility into annualized, the volatility is multiplied by the square root of trading days. (i.e.,) 305 if Index volatility is on daily basis and 52 if Index volatility is on weekly basis.

Thus, the Annualized Index volatility on daily basis = Daily Index volatility  $\times \sqrt{305}$

The Annualized Index volatility on weekly basis = Weekly Index volatility  $\times \sqrt{52}$

### Example

The following Table gives the index value of Dhaanya over a period of 10 days. Calculate its volatility and annualize it.

**Table 3.5 dhaanya Closing Prices**

Date	Dhaanya closing price
1Nov18	3,359.07
2Nov18	3,394.69
5Nov18	3,460.49
6Nov18	3,489.22
7Nov18	3,473.17
9Nov18	3,499.04
12Nov18	3,544.06
13Nov18	3,537.98
14Nov18	3,521.54
15Nov18	3,530.33

**Solution**

The Volatility of Dhaanya index is calculated by;  $\sigma_n = \sqrt{\frac{1}{(n-1)} \times \sum_{t=1}^n (IR_t - \overline{IR})^2}$

**Table 3.6 Dhaanya Volatility**

Date	Dhaanya closing price	Log return $Ln (iv_t / iv_{t1})$	$IR_t - \overline{IR}$	$(IR_t - \overline{IR})^2$
1Nov18	3359.07			
2Nov18	3394.69	0.0105	0.0050	0.000025
5Nov18	3460.49	0.0192	0.0137	0.000187
6Nov18	3489.22	0.0083	0.0027	0.000008
7Nov18	3473.17	0.0046	0.0101	0.000103
9Nov18	3499.04	0.0074	0.0019	0.000004
12Nov18	3544.06	0.0128	0.0073	0.000053
13Nov18	3537.98	0.0017	0.0072	0.000052
14Nov18	3521.54	0.0047	0.0102	0.000104
15Nov18	3530.33	0.0025	0.0030	0.000009
	<b>Sum</b>	<b>0.0497</b>		<b>0.000544</b>
	<b>Average</b>	<b>0.0055</b>		

$$\begin{aligned} \sigma_n &= \sqrt{\frac{1}{(10-1)} \times 0.000544} \\ &= \sqrt{0.000068} \\ &= 0.0082 \end{aligned}$$

The Annualized volatility is calculated as;

$$\begin{aligned} \text{Annualized volatility} &= \text{Daily Index volatility} \times \sqrt{305} \\ &= 0.0082 \times \sqrt{305} \end{aligned}$$

$$= 0.1432 \text{ (i.e.,) } 14.32\%$$

Thus, the volatility of Dhaanya for a period of 10 days from 1<sup>st</sup> November 2018 to 15<sup>th</sup> November 2018 is 0.0082 and its annualized volatility is 14.32%.

Return and volatility are the two important concepts that make any instrument attractive. Return generally means the reward received from the investment and volatility means the variation in prices of the investment instrument. The return of commodity index is simply a representation of the weighted returns of the constituent commodities futures as trading in commodity index is not yet permitted in India. The return of the commodity index is calculated as the natural logarithmic proportion of current day's futures price on the previous day's futures price. The volatility of the commodity index is nothing but the standard deviation of the commodity index returns. The volatility though calculated for a daily return series or weekly return series, it is generally represented as an annualized figure. The annualized volatility can be obtained by multiplying the Index volatility with the square root of 305 in case of the volatility obtained from daily return series and if it's weekly basis volatility then the Index volatility is multiplied with the square root of 52. The return and volatility of a commodity index provide its market participants the idea about the magnitude of futures price movements and earning opportunity of the commodity market.

#### **To Do Activity**

Each one can calculate the return and volatility of various commodity indices in India and discuss about them in class

### **3.5 Index Trading**

The index represents the market and its trading opportunities. When the index is built in such a way that it projects well about the market, then it itself becomes an attractive instrument for trading which is known as Index trading. This is designed to introduce the concept of commodity Index trading and brief about its pros and cons by covering the topics like

- Trading in commodity indices
- Advantage and disadvantage of Index trading

#### **Trading in Commodity Indices**

Commodity indices have also emerged as an attractive asset class as of stock indices. The trading in stock indices has gained popularity across the globe and at present, the index trading is reporting higher volume than the individual stock trading. Similarly in various developed countries in the world the commodity index trading over performs the trading done in individual commodities. Trading in a stock or commodity has a physical asset holding whereas trading in index leads to no such possession. The index trading allows its traders to earn or loss only upon the changes in its value (i.e.,) if index value increases the trader gains and if index value decreases the trader losses. In India, the trading in commodity indices has not yet permitted. SEBI, the market regulator is working on this issue and is expected to launch in the future. Though the market regulator who has permitted stock index trading long ago is struggling to launch trading in commodity indices due to the underlying economic issues related with commodities.

## Advantages and Disadvantages of Commodity Index Trading

Similar to all other financial instruments, commodity index also has some pros and cons which are listed below

### Pros of Index Trading

- 1) Index trading helps the trader to earn a profit without entering any futures contract.
- 2) As Index is a basket of best performing commodities, the return on index will be higher than the individual commodity return.
- 3) For hedgers who want to trade in nonindexed constituent commodities can also trade in index to earn a return.
- 4) The volatility of Index will also be less compared to the volatility of individual commodities that will benefit the traders.
- 5) The liquidity of index will also be higher than the individual commodities.
- 6) Index trading helps traders who deal with commodities lacking futures trading to hedge effectively than cross hedging possibilities.
- 7) The trading cost for Index trading will also be less compared to that of individual commodities

### Cons of Index Trading

- 1) The very big disadvantage of index trading is that the trader cannot possess the index and hold it for a longer period as in the case of individual commodities.
- 2) The index is calculated based on the futures prices of underlying commodities (i.e.,) it is a derived value from another derived product. Thus, if situations go negative then the index will also get affected badly.
- 3) Index trading is just as gambling.
- 4) The index trading can gain only out of capital gain.
- 5) The Index is a weighted basket of commodities that mostly reflects the commodities with higher weights. If these commodities trade adversely then the entire Index will get affected which will affect the traders of other commodities.
- 6) Analyzing the trend of an individual commodity is much easier than analyzing the index, as the fundamentals of the individual commodities are easily available to the investor.
- 7) More speculator and arbitrage activities will lead to adverse price effect that will adversely affect the entire economy.

An index that consists of top performing assets has become an attractive investment instrument for various market participants. The index trading like other investment instruments has various pros and cons. The index performs better than an individual commodity in terms of return, liquidity, and volatility. But the index cannot be possessed or held for a long period and as a derived value, it has lots of negatives related to the performance of its constituent commodities. Though commodity index trading is not yet permitted in India, it is undergoing measures to launch in the future.

### Case Study

Mr. Mukesh, a green gram farmer is expecting a yield of 100 Metric Ton of green gram in the near future. Green gram being a food crop is regulated by the Government regarding its price. This year the government has fixed a very low procurement price which will only offset Mukesh's cost on cultivation. He has some external debts and so he needs to earn some profit out of his harvest. Mukesh can sell elsewhere than government procurement agents but is aware of the price risks

during the time of harvest. Now Mukesh is confused on this issue. One of his friends said him about the commodity market which attracted Mukesh, but unfortunately, green gram is not traded on any commodity exchanges in India. This led Mukesh to further depression.

- a) What can Mukesh do in this matter?
- b) If Mukesh seeks hedging with an index which is not permitted in India. What can be done in this regard?
- c) Point out the reasons for permitting index trading in India.

#### **Model Questions**

1. Explain the rollover mechanism of Index calculation
2. Explain about the selection and weight allocation process of iCOMDEX index series.
3. What is Index return and how it is calculated?
4. What is Index volatility and how it is calculated
5. What is Index trading?
6. What are the pros and cons of Index trading?

# Chapter 4 Futures and Forwards

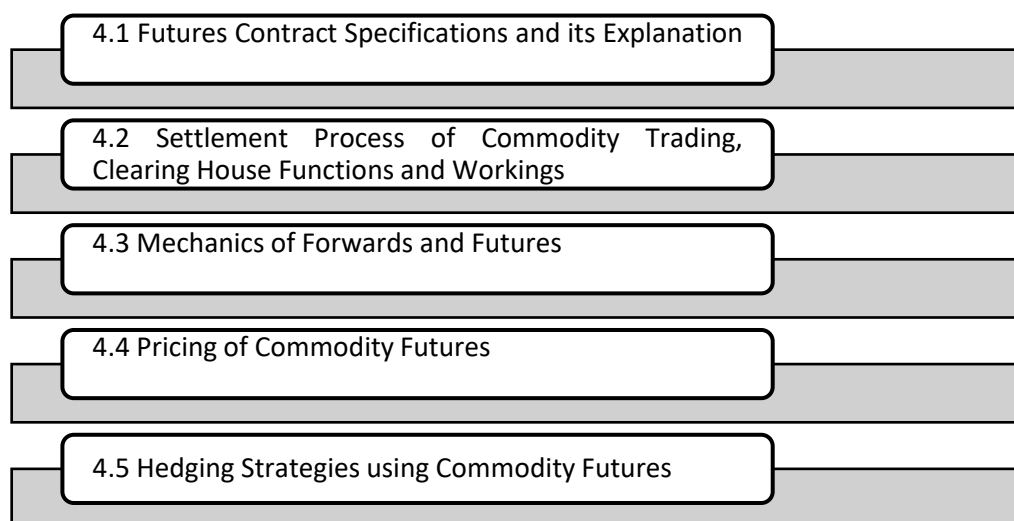
## Introduction

In sequence on knowing about commodity derivatives, commodity markets and commodity indices, the main topic to focus is about the various derivative instruments. The four common derivative instruments are Forwards, Futures, Options and Swaps. Knowing about each and every instrument in detail is essential to understand about trading with derivatives and to earn fruitful returns by using them. This fourth Chapter only covers about the Futures and Forwards so as to give in-depth knowledge about each and every topic related to them.

## Objectives

- To introduce and explain about the forwards and futures contract and its specifications.
- To elaborate about the settlement and delivery process of commodity futures.
- To explain about the mechanics of forwards and futures contract.
- To explain about pricing a futures and related concepts.
- To elucidate the various trading strategies commonly used by various market participants.

## Structure



### 4.1 Futures Contract Specifications and Its Explanation

Futures are standardized exchange traded contracts, where the exchange frames the contract. The specification related to the asset and trading is given in the contract specification of each futures contract. Thus, before knowing the futures mechanism, pricing, and strategies, it is important to know about the contract and its specifications first. This focuses on enlightening about the concepts relating to trading aspects of contract specification which includes

- Margin and its types
- Price limit and circuit breakers
- Guarantee for settlement
- Maximum allowable open positions



### **Content of Contract Specifications**

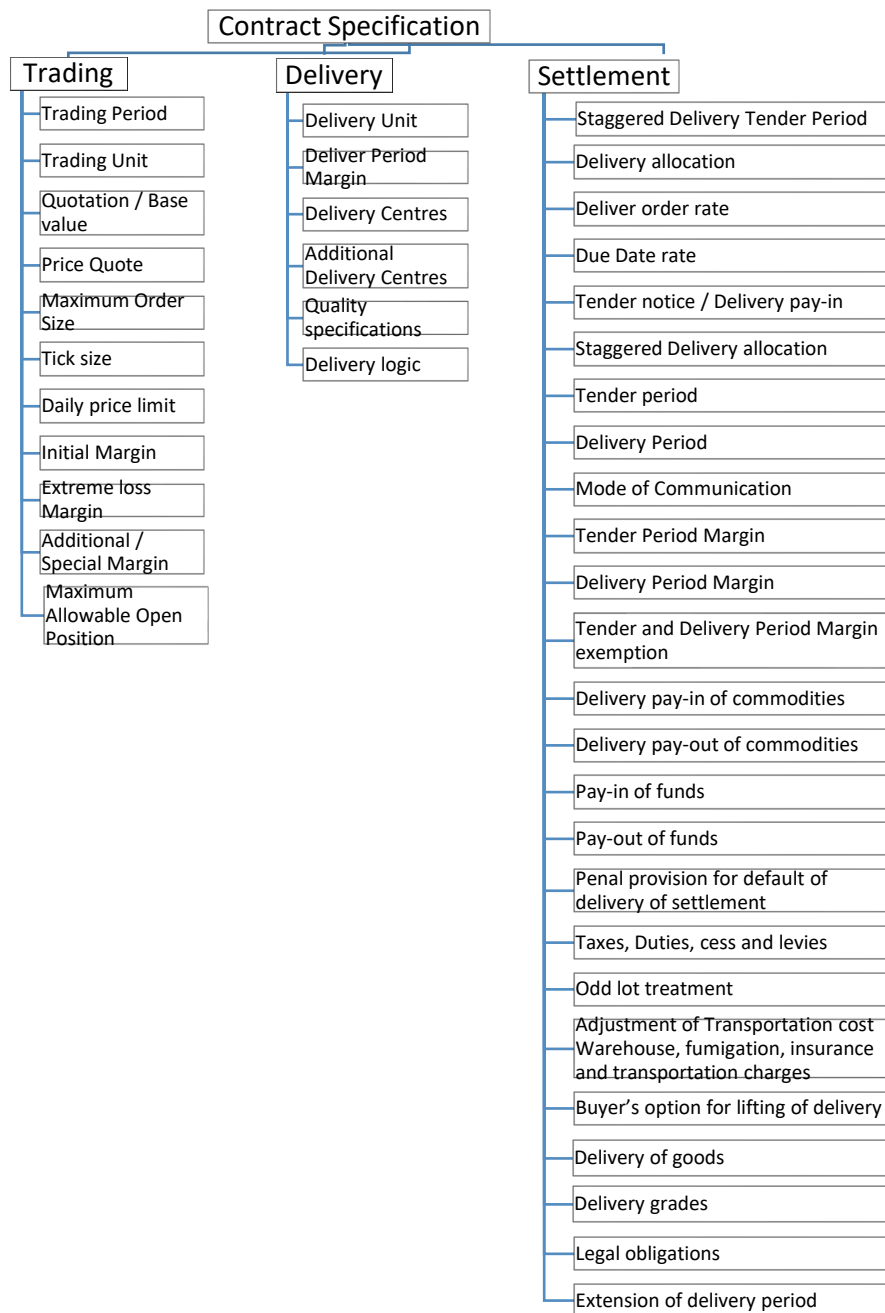
The contract specification is nothing but the document wherein all information relating to the trade, delivery, and settlement of a futures contract is clearly mentioned. In forwards contract parties frame the agreement on their own as per their needs and specification which is not possible in the futures contract. Futures contracts are made by the exchanges, the buyers and the sellers use the readymade contracts available in the exchanges. So, in order to help the traders to have knowledge about the underlying asset, exchanges publish the details about the specifications of the underlying assets in terms of quality and quantity. Moreover, the contract aspects related to trading, delivery, and settlement will also be mentioned in the contract specification. The contract specification differs from one futures contract to another.

The contents of a contract specification can be broadly classified into three parts.

1. Specifications related to trading
2. Specifications related to delivery
3. Specifications related to settlement

Apart from the above listed contents, the contract specification also includes basic information of the contract such as

- Symbol of the asset traded also known as Ticker symbol
- Description of the asset
- Contracts listed in the exchange represented by the expiry month
- Contract start day
- Last trading day



**Figure 4.1 Contract Specification**

**Table 4.1 Futures Contract Specification and Its Explanation**

<b>Name of Commodity</b>	Commodity name
<b>Ticker symbol</b>	Commodity symbol
<b>Contracts trading details</b>	
<b>Contract Listing</b>	Indicates the months for which futures contracts are available for trading.
<b>Contract Start Day</b>	The beginning day of the contract launch month
<b>Last Trading Day</b>	The end day of the contract expiry month
<b>Trading period</b>	Indicates the days and time open for trade
<b>Trading (in Kg/MT/Barrel)</b>	Minimum lot size for each contract
<b>Quotation/Base value</b>	Price quoted per grams/Kg/barrel
<b>Price quote (Location)</b>	Commodity delivery / takeoff point
<b>Maximum order size (in Kg/MT/Barrel)</b>	Maximum lot size per order
<b>Tick size (in INR)</b>	Minimum price movement
<b>Daily price limit (in %)</b>	Indicates the upper and lower bound prices for quotation and its relaxation details
<b>Detailed quality specifications</b>	Specification regarding the quality of the commodity. This varies from commodity to commodity
<b>Trading and Margining</b>	
<b>Initial margin (in INR)</b>	Initial margin is paid as a % of the traded value on the contract start day.
<b>Additional/Special margin (in INR)</b>	Additional margin is to be paid by both the buyer and seller of the contract when the commodity futures price exhibits a sudden hike in volatility than expected.
<b>Maximum allowable open position (in Kg/MT/Barrel)</b>	Maximum number of futures contracts quantity an individual client (trader) / a trading member can have at any point of time
<b>Delivery and Settlement procedure</b>	
<b>Deliver (in Kg/MT/Barrel)</b>	Minimum and maximum to be delivered per contract.
<b>Deliver centres (Location)</b>	Geographic location designated by the exchange where the seller must deliver the commodity
<b>Delivery period margin (in %)</b>	This margin as a % of the contract value of the underlying commodity to be delivered is to be paid on contract expiry date by both buyer and seller.
<b>Delivery logic</b>	The party (either buyer/seller/both) having the option to give or take delivery
<b>Due Date Rate</b>	Due date rate is the rate calculated on the last day/expiry day of the contract. The rate calculation differs from commodity to commodity based on the spot price of the underlying commodity

## Margin and Its Types

One important content of contract specification and feature of a futures contract is the margin. Margin generally means the collateral money that the holder of the futures has to deposit with the exchange to cover a portion or all of the credit risk of their counterparty. It is imposed on both the buyer and seller of futures by the exchange mainly to safeguard its own interest and market integrity. The Margin is not a down payment but a good faith money or a security deposit or insurance against future loss. The margin varies from contract to contract depending upon the volatility of the underlying asset which is set by the exchange that is specified in the contract specification. There are different types of margin such as

1. Initial margin
2. Maintenance margin
3. Variation (or) Mark to market margin
4. Additional / Volatility margin
5. Tender Period margin
6. Delivery margin

### 1. Initial Margin

Initial margin is the mandatory money to be deposited by both the buyer and seller in their margin account maintained with the exchange clearing house without which they can't place a buy or sell order. The initial margin aims to cover the highest potential loss that could occur in one trading day. As risk is the main concern of margin money, the initial margin is calculated by the Value at Risk (VaR) system just as in stocks. Initial margin is fixed by the exchange so as to cover 99% times the price movement of the asset, which differs for each commodity. The exchange also keeps in view to balance the security of the contract with the cost of entering a contract before fixing the initial margin. Thus, the initial margin will mostly be 5% 10% of the contract value. The important feature of initial margin is that the amount of initial margin must be compulsorily maintained throughout the period that the contract position is open and it will be refunded at the time of exercise, closeout, delivery or expiry of the contract.

### 2. Maintenance Margin

Maintenance margin is the minimum amount that one's margin account must carry till the contract position is open. It is set slightly less than the initial margin. The gains and losses occurred during the trade in the contract are adjusted to the trader's margin account. A series of losses can lower the value of margin account and here comes the role of maintenance margin which is to ensure that the balance of margin account will never become zero or negative. When the margin account value drops below the maintenance margin, the trader receives a 'margin call' from his broker to replenish the margin money back to the level of initial margin. If the trader fails to do so in one day after the margin call is made, the broker closes out the position by offsetting the contract.

For example, a buyer enters a futures contract by paying an initial margin of Rs.5,000, where the maintenance margin is set at Rs.3,000. Due to a series of losses, the margin account value drops to Rs. 2,500. Now the broker makes a margin call to the client/trader to deposit Rs. 2,500 in his margin account to replenish the margin money equal to the level of initial margin (i.e.,) Rs.5,000. Thus, the initial margin is the amount needed to enter a futures contract and maintenance

margin is the minimum amount that the margin account can reach before replenishing.

### **3. Variation (Or) Mark to market Margin**

Mark to market margin is the margin collected from both buyer and seller to cover the notional loss, which is the difference between the agreed contract price of the underlying asset and its current market price. The exchange usually clears all trading on a daily basis with the closing price of that trading day and the profits or losses are adjusted to the traders' margin accounts either by paying in or paying out on T+1 basis. The daily losses are met by an additional money deposit known as the variation margin which is paid by the buyer if market price declines and the seller if market price rises. The gains earned above the initial margin level can be withdrawn by the trader or used for further trade.

In forwards contract, the transaction between parties occurs only on purchase of contract and the settlement day, where a large difference in price between the forwards price and market price will be built up, leading to one party incurring a huge loss upon delivery. But, the mark to market margining of futures helps in eliminating this credit risk by forcing the parties to update the price daily with the market. Thereby, the parties will have only a little additional money due on the settlement day (i.e.,) profit or loss of the settlement day instead of the lifetime profit or loss of the contract. Thus, the mark to market margin helps in protecting the interest of the exchange by marking the future price to every day's market price.

### **4. Additional / Volatility Margin**

Volatility margin is an additional margin imposed by the exchange at times of unexpected volatility in prices of the underlying asset. This margin is collected from both the buyer and seller as a precautionary measure to prevent breakdown or any payment crisis. Volatility margin is not a compulsory margin as initial margin, maintenance margin or mark to market margin, but is called for only when exchange fears that market seems to be too volatile.

### **5. Tender Period Margin**

The tender period margin is imposed on both outstanding buy and sell contracts when they enter the tender period which starts a few days before the expiry of the contract. This margin is computed by multiplying the rate specified for the commodity with the net open positions held by the trader. The margin rate differs from commodity to commodity and is mentioned in the contract specification.

### **6. Delivery Period Margin**

The delivery period margin is an additional margin imposed on all buy and sell position contracts during its concluding phase which starts from the tender period that goes up to the delivery or settlement. This margin amount will generally be equal to 25% of the total contract value which may differ from time to time and is specified in the contract specification published by the exchange. The delivery period margin provides additional collateral for delivery of the asset and is held by the clearinghouse till contract expiry which is settled to the short position trader (seller) after collecting full contract value from the long position trader (buyer) who in turn receives delivery of asset from the seller through the exchange.

### Example

A trader has taken up Guar seed futures on 1<sup>st</sup> September 2018 whose value is fixed at Rs. 12,000 per ton and a Guar seed futures contract is for 10 Metric ton. The various margins for the contract were initial margin at 5%, the maintenance margin at 4%, volatility margin at 2%, tender period margin at 5% and the delivery period margin at 25%. Thus, the margin amount are calculated as follows

Initial margin on 1<sup>st</sup> September =  $12,000 \times 10 = 1,20,000 \times 5\% = \text{Rs. } 6,000$ .

Maintenance margin on 1<sup>st</sup> September will be =  $12,000 \times 10 = 1,20,000 \times 4\% = \text{Rs. } 4,800$ .

If the futures price moves to Rs. 12,100 per ton the next day; the margin to be maintained will be equal to Rs. 6,050 ( $12,100 \times 10 = 1,21,000 \times 5\%$ ). But the trader's margin account has only Rs. 6,000. Thus, the trader has to pay an additional margin of Rs. 50 to make the margin account equal to the required margin money. This additional margin is known as mark to market margin or variance margin. If on the third day the futures price moves to Rs. 11,900 per ton, now the margin to be maintained will be equal to Rs. 5,950 ( $11,900 \times 10 = 1,19,000 \times 5\%$ ). At this situation the trader has an excess of Rs. 100 in his margin account which he can withdraw if necessary.

When the prices of the Guar seed are highly volatile, then an additional margin is imposed upon the trader on his total outstanding contract value known as the volatility margin. Say, on 20<sup>th</sup> September the exchange calls for volatility margin of 2% and the Guar seed futures price on the day is Rs. 12,600 per ton. Then, the volatility margin will be =  $12,600 \times 10 = 1,26,000 \times 2\% = \text{Rs. } 2,520$ .

If the trader doesn't close his open position and it enters the tender period, then the trader has to pay a separate margin amount known as the tender period margin. If the exchange calls for 5% tender period margin and the futures value on the day is Rs. 12,700, then the margin amount will be =  $12,700 \times 10 = 1,27,000 \times 5\% = \text{Rs. } 6,350$ .

When the trader enters the delivery period, the trader will have to pay a separate margin known as the delivery period margin. If the exchange calls for 25% delivery period margin and the futures value on the day is Rs. 13,000, then the margin amount will be =  $13,000 \times 10 = 1,30,000 \times 25\% = \text{Rs. } 32,500$ .

### Other Risk Containment Measures Present in Contract Specification

Margin money serves as a guarantee for the obligation of the futures contract and covers a lesser portion of credit risk. The margins cannot overcome all risks present in the commodity market for which the exchanges have various other measures such as

- i. Price limits and circuit breakers
- ii. Maximum allowable open positions
- iii. Settlement guarantee fund
- iv. Penal provisions

#### I. Price Limits and Circuit Breakers

The price limits and circuit breakers are mechanisms used by the exchanges to control the overreactions of market volatility. The price limits are the upper and lower bound of prices within which the futures prices can fluctuate in a single

trading day. It is fixed by the exchange depending on the previous day's prices. The price limits will not affect the futures trading but put a preset band of prices outside which the trading is prohibited. The main aim of price limits is to prevent large price fluctuations occurred due to excessive speculation and to safeguard the interest of the genuine traders. The price limits may become futile when there is a rapid increase or decrease in underlying assets price.

The Circuit breaker is the mechanism of halting the trade temporarily or completely when the price moves above or below the price limits. The duration of such trade interruption by the circuit breakers is known as the coolingoff period. Generally, such interruption is triggered by the price limits due to extreme price movements and it helps in moderating the volatility and restoring the market participants' confidence. The details about the price limits and circuit breakers would be available in the contract specification which may widely be the same for all commodities.

## **II. Maximum Allowable Open Positions**

The maximum allowable open position specification is imposed to overcome the risk arise due to cornering the market. When a trader possesses a large share of a commodity, he can take control over the price of that commodity, which is known as cornering the market. This can also be done in a futures contract by buying more number of futures contract and selling them after inflating prices which is mostly done by speculators. In order to overcome such speculative trading, the exchanges fix a maximum limit for the open positions to be held by a member or his client. The exchange's clearinghouse keeps a track on the open positions held by a member and if it exceeds the maximum allowable limit, the exchange has powers to impose additional margin for this.

## **III. Settlement Guarantee Fund**

The exchange basically ensures two functions, one is properly correlating the spot and futures prices and another is guaranteeing the performance of the contract. In order to guarantee the performance of the contract, the exchanges are required to create a fund contributed by its members in the form of cash or securities to meet the margin requirement known as the Settlement Guarantee Fund (SGF) or the Trade Guarantee Fund (TGF). The cash contribution must not be less than 10% of the total margin requirement and the eligible securities are normally central government securities and Treasury bills. The guarantee funds aim at

- Guaranteeing settlement of bonafide transactions
- To create confidence among the market participants
- To protect the investors' interest

Most of the Indian commodity exchanges have a robust system in handling defaults because of which their guarantee funds are untouched. Innovatively the MCX has incurred its Guarantee fund to meet out defaults if occurred.

## **IV. Penalty Provisions**

The exchanges before touching the Guarantee funds for defaults levies a series of penalty on

default trader to overcome the loss met by the counterparty. The penalty percentage varies from time to time and also upon the commodity's nature. The penalty is not only levied in case of complete default but also upon partial default of quantity and quality of the commodity mentioned as per the contract specification. Mostly the penalty arises during physical settlement as cash settlement is nothing but offsetting the open position with its counter position. The penalty will be higher so as to make trader oblige the contract.

The futures contracts are readymade contracts framed by the exchanges, where the traders are unaware of the contract details. The contract specification is a document that contains complete details about the futures contract relating to trading, delivery, and settlement. It differs from commodity to commodity and from time to time. The details relating to trade are focused on this that consists mainly about various margins and other risk containment measures. Margins are goodfaith money collected compulsorily from both buyer and seller of futures to minimize counterparty risk. Initial margin is the basic margin without which a trader cannot enter a futures contract. Next is the maintenance margin which is the minimum amount to be present in a trader's margin account for trade. Marktomarket margin is a variation margin that is collected to meet the notional loss of every trading day whereby marking the futures price with the market price. An additional margin is collected by the exchange at the time of unexpected volatility in the market known as the volatility margin. The other margins are the tender period margin and delivery period margin that are collected during the tender period and delivery period respectively as additional collateral for delivery. All the margins are refunded to the traders at the time of delivery, expiry or closing out but in practice, these margins are adjusted to the money to be paidin and payout by the traders and the difference is collectedin or givenout by the exchange. Apart from the margins, the exchange also has other measures to overcome default risks such as price limits and circuit breakers, maximum allowable open positions, settlement guarantee funds, and penalty provisions. The price limits frame a band within which the trading prices are permitted to fluctuate and incase the prices cross these limits,the trade is halted temporarily or continuously known as the circuit breakers to moderate the volatility and restore confidence among the market participants. The exchange also fixes a maximum limit in open positions held by a member or his client to safeguard from the risk of cornering the market. Despite all the measures taken by the exchanges, there may be some delivery defaults which may lead to counterparty loss. To overcome this loss, the exchanges impose various penalties on the default trader and to tackle extreme case a settlement guarantee fund is also created by the exchange.

#### **To Do Activity**

Each one can select one commodity and discuss its contract specification in the class by explaining the reasons for the information given in it.

#### **Additional Reading Material**

##### **Value at Risk (Var) Calculation**

VaR generally measures the potential loss of the asset over a given time horizon for a given level of confidence. For example An asset say cotton is said to have a Value at Risk (VaR) of Rs.10,000 over a



period of 1 day with 99% confidence level. This means that there is a 1% probability that the cotton will lose Rs. 10,000 in one day.

Generally, for calculating margins, VaR is usually calculated with a 90%, 95%, 98% or 99% confidence level. VaR is computed based on the daily volatility of the asset which in turn is calculated based on the historical return series of the asset. The formula for calculating VaR is

$$\text{VaR} = \text{Value of the asset} \times (\text{Annualized volatility of the asset adjusted for a given time horizon}) \\ \times (\text{Standard normal value for a given confidence level})$$

- a) Annualized volatility of the asset is measured as the standard derivation of continuously compounded return (i.e., the natural logarithm of return;  $\ln (P_t/P_{t-1})$ ) of the asset over the trading days in a year (252 days in equity and 305 days in the commodity)
- b) The standard normal value for 90% is 1.57; 95% is 1.64; 98% is 2.33 and 99% is 2.57.

## 4.2 Settlement Process of Commodity Trading, Clearing House Functions and Workings

Any trade involves an exchange of some goods or services against its monetary value. Similarly, the futures trading also get completed with the exchange of the underlying asset against the agreed money at an agreed future date. This process is generally termed as the delivery and settlement process of the futures contract which is done through the exchange as per the specifications given in the contract. This aims at briefing about the delivery and settlement procedures of futures contracts and the parties involved in it. Thus, the content covered in this are

- Commodity clearinghouse
- Working of clearinghouse
- Functions of clearinghouse
- Settlement of futures contract
  - Cash settlement
  - Physical settlement
- Delivery of futures contract
- Warehouse and warehouse receipts.

### Commodity Clearing House

Clearinghouse is the one that handles all the back office works of all trades performed in the exchanges. The clearinghouse can be a separate entity or a department of an exchange that is responsible for maintaining records of all trades happening in the exchange. The exchanges just act as a platform where the buyers and the sellers meet and trade, whereas, clearinghouse is the one that handles all the work relating to all trades from the beginning to the end. The commodity clearing house handles the trading work of the commodity exchanges. In India, every commodity exchange have their own clearing houses as a wholly owned subsidiary. Multi-Commodity Exchange Clearing Corporation (MCXCCL) is the clearinghouse of Multi-Commodity Exchange (MCX) and National Commodity Clearing Limited (NCCL) is the clearinghouse of National Commodity and Derivatives Exchange Limited (NCDEX). Generally, the clearinghouse acts as the central counterparty for all trades (i.e.,) it acts as the seller to a futures buyer and a buyer to a futures seller. But clearing house's counterparty will be the clearing members (a subset of exchange's members) and not the trader. The clearing member performs the clearing function for their own account and their clients.

The clearing members are of three types such as

- (i). **Trading Member cum Clearing Member (TMCM)** is a clearing member who also acts as a trading member. This clearing member clears and settles their own trades, their clients' trades and also the trades of other trading member and custodial participants.
- (ii). **Professional Clearing Member (PCM)** is a clearing member who does not act as a trading member. This clearing member clears and settles the trades of the trading members and custodial participants. Typical banks or custodians can only become a Professional Clearing Member.
- (iii). **Self-Clearing Member (SCM)** is a clearing member who also acts as a trading member. This clearing member clears and settles the trades of its own and their clients' but cannot clear and settles the trades of other trading member and custodial participants.

### **Functions of Clearing House**

The clearing house just takes care of the back-office work of the exchange (i.e.,) it doesn't have any role to play in price determination, price fluctuation or creating contracts which are done by the exchanges themselves. So, the functions of the clearinghouse are constrained only to collect margins, effect pay in or payouts and monitor the delivery and settlement of the contracts.

#### **I. Collect Margin**

The clearinghouse is responsible to ensure that the trader has sufficient balance in his account before each trade. Actually, the exchange clearing house checks the adequacy of funds of its clearing members who in turn checks for their clients. In case of additional margins levied by the exchanges, the clearinghouse is responsible to collect them. The margin money frames the in part of the risk management system of the clearinghouse.

#### **II. Effects Pay ins And Pay outs**

The next important function of the clearinghouse after collecting margins is to effect the pay ins and payouts. Pay ins or Payouts are associated with collecting or repaying of the funds respectively. Every open position is marked to the market daily where the losses, lower the margin account balance and gains, increases the margin account balance. When the margin account value falls below the maintenance margin, the traders are asked to replenish their account upto the level of initial margin and in case of availability of money over the required initial margin, the trader can either use it for further trade or withdraw for other uses. Thus, maintaining the traders' funds by keeping track of their trades through the clearing members are done by the exchange clearinghouse.

#### **III. Monitoring Delivery and Settlement**

The next and most important function of the clearing house is to monitor the delivery and settlement process of the contracts. Any contract gets completed only by taking or giving delivery of the underlying asset. The clearinghouse is incharge of carrying out this delivery and settlement as it acts as the central counterparty for both buyer and seller of a contract. The clearing house maintains a good risk management system to handle this even in case of any defaults.

## Clearing Banks

Clearing Banks are the key link between the Exchange's clearing house and its clearing members through whom the payins and payouts of funds during settlement process takes place. Every exchange has their own tie up with some banks that acts as the clearing banks for that exchange. Every clearing member of the exchange has to open a separate clearing account with any of the exchange listed clearing banks through which the trade transactions takes place. These banks are in charge of effecting the payins and payouts (i.e.,) these clearing banks monitors and intimates the exchange about the funds received from the clearing member in case of payins after which further trade/trade procedure takes place and these clearing banks credits the funds to the clearing member in case of payouts on the demand of the exchange. There are 15 clearing banks for MCX such as Axis Bank, Bank of India, Canara Bank, CITI Bank NA, Corporation Bank, Development Credit Bank, HDFC Bank, ICICI Bank, IndusInd Bank, Kotak Mahindra Bank Ltd., Punjab National Bank, State Bank of India, Tamilnad Mercantile Bank, Union Bank of India and Yes Bank. The NCDEX has appointed 12 banks to act as the clearing banks and they are Axis Bank, Bank of India, Canara Bank, DCB Bank Ltd., HDFC Bank, ICICI Bank, IndusInd Bank, Kotak Mahindra Bank Ltd., Punjab National Bank, Tamilnad Mercantile Bank, Union Bank of India and Yes Bank.

Thus, the role of Clearing Banks are

- Acts as the clearing banker for the exchange by collecting and crediting funds from and to the clearing members.
- Maintains easy flow of fund that helps the exchanges in effective and fast settlement of trades.

## Settlements of Futures Contract

Settlement occurs at the final stage of a contract (i.e.,) settlement is the act of completing the contract. It is generally done in two ways that is specified in the contract specification.

- i. Cash settlement
- ii. Physical settlement

### i. Cash Settlement

Cash settlement means the futures contracts are settled by cash, where the seller pays the buyer the value for the commodity instead of giving physical commodity. As the accounts of all traders are marked to the market everyday it is easy for the traders to opt for cash settlement. Thus, in practice, almost 98% of commodity futures contract is cash settled. The traders settle their futures contract in cash and buy or sell the commodity physically in the cash market as the spot and futures prices tend to move parallel with one another that merges into one price on the expiry of the futures. Another reason for traders opting cash settlement is that the futures contracts are standardized contracts which may not be suitable for merchandising purpose where the trader needs different quality and quantity aspects.

The trader enters the futures contract by paying an initial margin and this margin money is adjusted to every day's price difference which known as the marktomarket margin or variance margin. When the trade enters the tender period, the broker intimates the trader about his open position and the choice of his settlement. If the trader opts for cash settlement, the exchange clearing house which is in charge of settlement process of the

trades' issues the statement of profits and losses of the trade and the margin account balance. If the trade results in profit for the trader, the profit amount with the margin amount is credited to the traders account and if the trade results in loss, the loss amount is deducted from the margin and the remaining amount if any is credited to the traders account or if the loss exceeds the margin amount, the trader is asked to pay the net. The process of cash settlement can be better understood with the following example and figure.

### Example

Mr. X is a trader of who takes up long position in March castor seed futures contract that trades at Rs. 500 per quintal on 10<sup>th</sup> March and the contract size is 10 Metric ton that expires on 20<sup>th</sup> March. The initial margin to be paid is 10% of the contract value. The futures prices, margin and profit/loss of the trader is as below

**Table 4.2 profit/Loss of Long Futures Position**

Date	Futures price per quintal (rs.)	Initial margin (rs.)	Mark to market margin (rs.)	Profit/loss per quintal (rs.)
10 <sup>th</sup> March	500	50,000		
11 <sup>th</sup> March	550	55,000	+5,000	+50
12 <sup>th</sup> March	525	52,500	2,500	25
13 <sup>th</sup> March	500	50,000	2,500	25
14 <sup>th</sup> March	490	49,000	1,000	10
15 <sup>th</sup> March	495	49,500	+500	+5
16 <sup>th</sup> March	510	51,000	+1,500	+15
17 <sup>th</sup> March	515	51,500	+500	+5
18 <sup>th</sup> March	525	52,500	+1,000	+10
19 <sup>th</sup> March	520	52,000	500	5
20 <sup>th</sup> March	530	53,000	+1,000	+10
<b>Total</b>			<b>3,000</b>	<b>30</b>

Note 10 Metric Ton = 1000 Quintal

Here, the trader got Rs. 30 profit per quintal (i.e.,) total profit from the trade is Rs. 30,000 (30 x 1000) and the margin account shows a positive balance of Rs. 3,000. Thus, the total amount credited to the long position traders account is Rs. 33,000 (30,000 + 3,000).

Similarly, the short position trader's (i.e., the counterparty of Mr. X) margin and profit and loss for the same condition is as follows

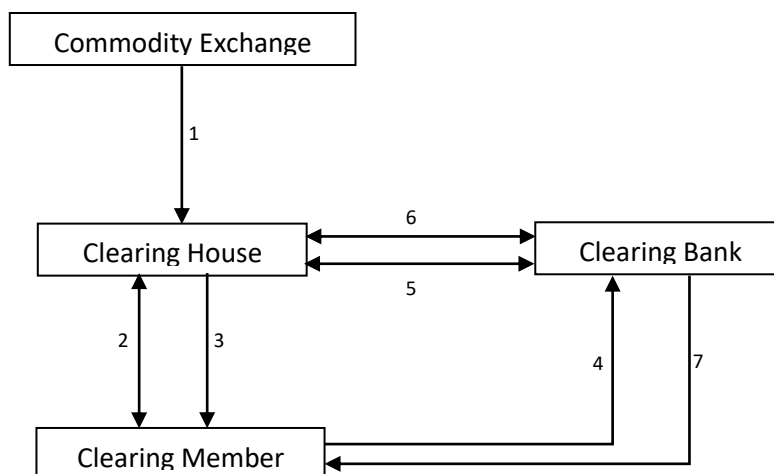
**Table 4.3 Profit/Loss of Short Futures Position**

Date	Futures price per quintal (rs.)	Initial margin (rs.)	Mark to market margin (rs.)	Profit/loss per quintal (rs.)
10 <sup>th</sup> March	500	50,000		
11 <sup>th</sup> March	550	55,000	+5,000	50
12 <sup>th</sup> March	525	52,500	2,500	+25
13 <sup>th</sup> March	500	50,000	2,500	+25
14 <sup>th</sup> March	490	49,000	1,000	+10
15 <sup>th</sup> March	495	49,500	+500	5
16 <sup>th</sup> March	510	51,000	+1,500	15
17 <sup>th</sup> March	515	51,500	+500	5
18 <sup>th</sup> March	525	52,500	+1,000	10
19 <sup>th</sup> March	520	52,000	500	+5
20 <sup>th</sup> March	530	53,000	+1,000	10
<b>Total</b>			<b>3,000</b>	<b>30</b>

Note 10 Metric Ton = 1000 Quintal

Here, the short position trader also has to pay the same margin as of the long position trader (i.e.,) Rs. 3,000. The short position trader has got Rs. 30 loss per quintal that results in a total loss of Rs. 30,000 (30 x 1000) from the trade. Thus, the short position trader has to pay Rs. 27,000 (30,000 - 3,000) to the exchange clearing house through the clearing member.

So, in cash settlement there is no exchange of commodity instead the profit and loss is exchanged between the traders.



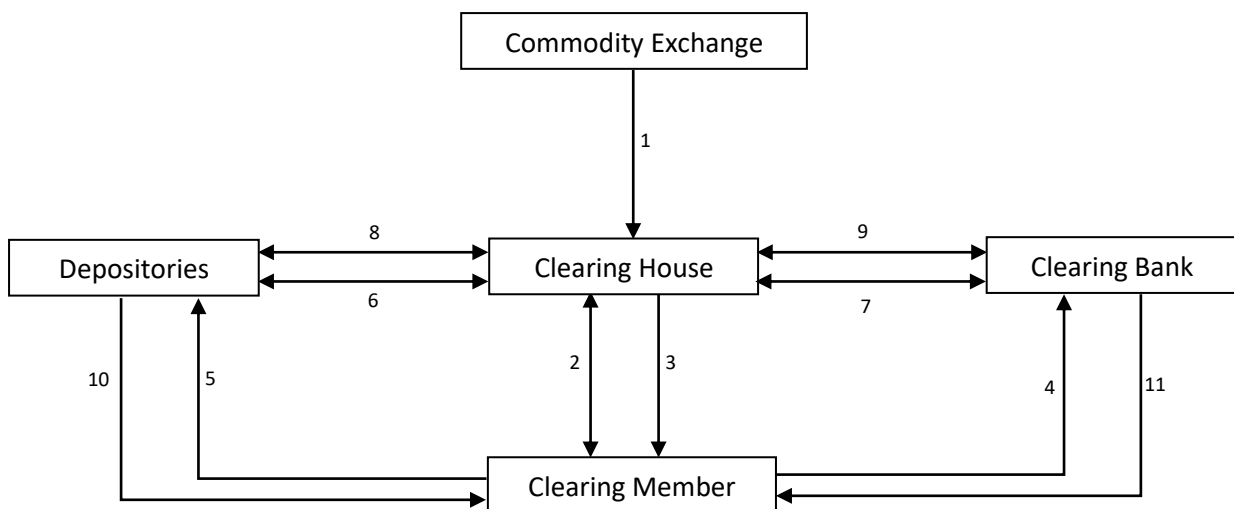
**Figure 4.2 Cash Settlement**

1. Trade details from Commodity Exchange to its Clearing House
2. Clearing House notifies the accomplished trade details to the clearing member who confirms back based on which the clearing house applies multilateral netting and determines the clearing member's obligations.
3. Download of obligations and payin advice of funds.
4. Instructions to the Clearing Banks to make funds available by payin time.

5. Clearing House advises the Clearing Bank to debit the Clearing Members account and credit its account which the Clearing Bank does. This is known as Payin of funds.
6. Clearing House advises the Clearing Bank to credit the Clearing Members account and debit its account which the Clearing Bank does. This is known as Payout of funds.
7. Clearing Banks informs the Clearing Member about the transactions.

## ii. Physical Settlement

The physical settlement is where the contracts are settled with giving and taking the delivery of the physical commodity. In the physical settlement the specified quantity of the commodity is delivered to the exchange by the seller which is then delivered to the buyer by the exchange. Though any commodity trades complete with a physical exchange of commodities, only a minor portion of the futures contracts are settled physically (i.e.,) less than 2% of commodity futures contracts go for physical settlement. Most of the contracts traded go for closing out by taking the opposite position.



**Figure 4.3 Physical Settlement**

1. Trade details from Commodity Exchange to its Clearing House
2. Clearing House notifies the accomplished trade details to the clearing member who confirms back based on which the clearing house applies multilateral netting and determines the clearing member's obligations.
3. Download of obligations and payin advice of funds.
4. Instructions to the Clearing Banks to make funds available by payin time.
5. Instructions to the Depositories to make goods available by payin time.
6. Clearing House advises the Depositories to move the Clearing Members goods to its account which the Depositories does. This is known as Payin of goods. In Demat form the Depositories debit the Clearing Members account and credits the Clearing House account with the required quantity of goods.
7. Clearing House advises the Clearing Bank to debit the Clearing Members account and credit its account which the Clearing Bank does. This is known as Payin of funds.

8. Clearing House advises the Depositories to move the goods from its account to the Clearing Members which the Depositories does. This is known as Payout of goods. In Demat form the Depositories credits the Clearing Members account and debits the Clearing House account with the required quantity of goods.
9. Clearing House advises the Clearing Bank to credit the Clearing Members account and debit its account which the Clearing Bank does. This is known as Payout of funds.
10. Depositories informs the Clearing Member about the goods transacted through Depository Participants.
11. Clearing Banks informs the Clearing Member about the funds transacted.

### **Delivery of Futures Contracts**

A commodity futures contract goes for closing out or cash settlement or physical settlement mainly depending upon the trader's demand. When the traders opt for physical settlement, there comes the role of delivery of the commodity. Delivery means the tender and receipt of physical commodity in settlement of a futures contract. The exchange has a set of rules to be followed in delivering the commodities so as to maintain a standard and safeguard the exchange's interest. The contract specification clearly mentions all details relating to the delivery such as when to deliver and where to deliver, etc. When there is an act of delivering the commodity, it cannot be done directly from the seller to buyer as the exchange plays an intermediate role with specification laid down for delivery. Though the seller is ready with the commodity before the contract expires, it cannot be delivered (for example a farmer cannot deliver his yield on the same day of harvest). There come the warehouses where these commodities can be stored till the stipulated time of delivery.

### **Warehousing**

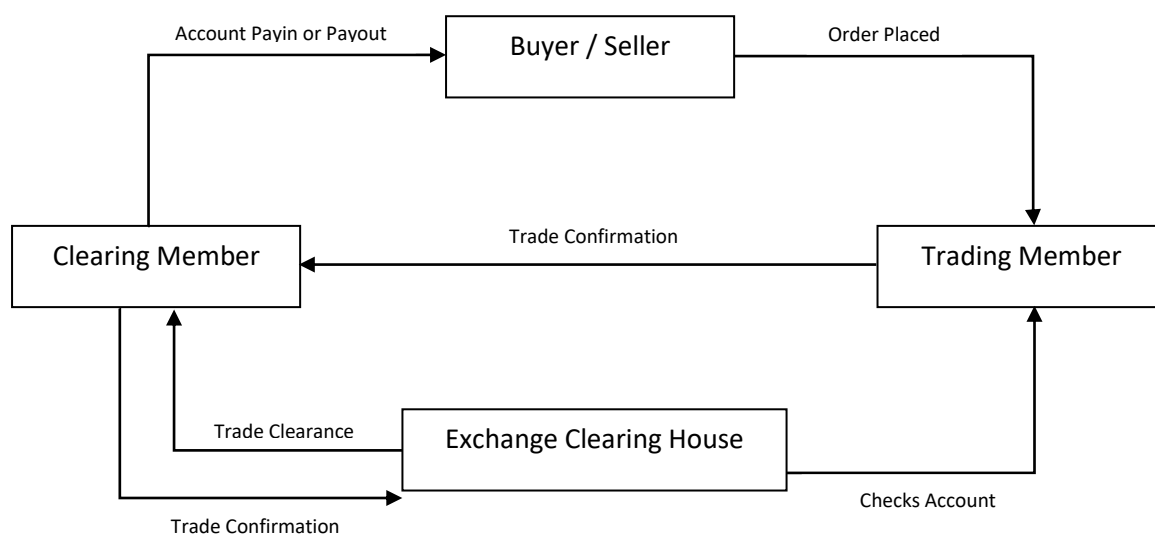
Warehousing is the service provided as the critical logistic support for commodities. There exists a time gap between the supply of a commodity and its delivery date. The warehouses are places where the commodities can be stored during the time gap. There are many public and private warehouses operating in India. Central Warehousing Corporation, State Warehousing Corporation and the Food Corporation of India are public sector owned companies providing warehousing services especially for agricultural commodities in India. All commodities cannot be stored in all warehouses as each commodity needs different storage systems. Thus, due to the increase in futures market activities, there is a scope for growth in the warehousing sector.

### **Warehouse Receipts**

During delivery, it is important for the seller to abide by the contract specification with quantity and quality aspects. Carrying the physical commodities from one place to another and another may lead to quality and quantity losses and also incurs lots of cost for the seller. So to minimize these risks, the warehouse receipts are used. Warehouse receipts are title documents issued by the warehouses to the depositors against their commodities deposited in the warehouses. These warehouse receipts are given by the seller to the exchange instead of actual commodities that is passed over to the buyers by the exchange clearinghouse. In a national level screen based multicommodities exchange, the traders can be from various parts of the country making it difficult for the traders to transfer the warehouse receipts in physical form. The physical form of warehouse receipts also suffers from some disadvantages of trading such as

- Unable to split the warehouse receipt when the trader is obliged to deliver only a portion of the commodity.
- Risk of theft, mutilation, and forgery in transit.

Thus, to overcome these issues, the dematerialization of warehouse receipts are done. The National Securities Depository Limited (NSDL) has extended its depository services for commodities also. As per this, a trader of commodities has to open a separate Demat account for commodities which cannot be merged with that of the securities account if he holds so (A trader can trade both in equities and commodities but with separate Demat accounts for equities and commodities). For facilitating the Demat form of warehouse receipts, many warehouses have come out of issuing depository eligible warehouse receipts along with the help of NSDL and Indian commodity exchanges.



**Figure 4.4 Working of Commodity Clearing House**

The working of commodity clearing house can be better understood from the above figure. 4.2.1

- A futures contract trading starts with a buyer or seller placing an order through a registered trading member.
- Once the placed orders get the counterparties it is known as matched trades. These trades are placed before the clearinghouse for trade clearance which is usually done through the registered clearing member.
- The matched contracts get registered with the clearinghouse where two new open contracts are created with the clearinghouse as the buyer to the contract seller in one and as the seller to the contract buyer in another.
- The clearinghouse on clearing the trade of a buyer/seller through its clearing members also checks for their margin balance through its trading members.
- Thus, by becoming the counterparty for all open contracts, the clearinghouse undertakes to perform the contractual obligation that is backed by the risk management system and special funds created to manage defaults.
- The clearing house settles all daily transactions through its clearing members by paying in or paying out of funds on T+2 basis (i.e., Transaction day plus two working days) and also looks over the physical delivery.



### Delivery Process for Futures Contracts

The delivery of the physical commodity is done in a sequence by the exchange which is explained as follows

- 1) The trader who wishes to go for delivery waits until the contract reaches the tender period.
- 2) The clearinghouse tracks those open contracts after a tender period and makes a call to its clearing member to report on the traders' positions.
- 3) The clearing member then contacts his clients who have an open tender period position about their delivery. The contracts have three different delivery options such as
  - a) Both option
  - b) Seller option
  - c) Compulsory Delivery
- a) Both options are that delivery occurs only when both the buyer and seller intend to take or give delivery.
- b) Seller option is that delivery occurs on seller's intention to give delivery. Under this option, once the seller is willing to give delivery, the buyer has to compulsorily take delivery against his open position, failure/default of which attracts penalty. Even the seller may attract a penalty if he fails to deliver after choosing this option of contract.
- c) Compulsory delivery is the option where both buyer and seller have to compulsorily take and give delivery for all open position on expiry of the contract default of which attracts penalty.
- 4) Upon the option of the client to give or take delivery in case of the seller. The clearing member collects the warehouse receipt from the seller and hands it over to the exchange clearing house.
- 5) The exchange clearinghouse matches and marks the buyer to whom the delivery is to be made.
- 6) The exchange provides some selected cities for delivery where the traders can give and take delivery as specified in the contract specification. The seller is required to deliver the commodity to exchange specified warehouse where the commodity undergoes quality and quantity check by an authorized entity either a person or institution known as the Quality Assayer.
- 7) After obtaining the certificate from Assayer satisfying the contract specification, the exchange clearinghouse on or after the expiry of the contract delivers it to the buyer.
- 8) The exchange clearinghouse collects the money from the buyer and gives it to the seller.
- 9) Upon buyer lifting the goods from the warehouse and seller receiving the funds the contract delivery gets completed.

This continues with the previous in briefing the concepts of futures contract specification relating to settlement and delivery. The exchange clearing house is a department or separate entity responsible for all back office works of the exchange. The exchange clearinghouse acts as a central counterparty in all trades. The main functions of the exchange clearinghouse are collecting margins, effecting payins and payouts and monitoring delivery and settlement. The delivery and settlement occur at the final stage of a contract, where settlement is the act of completing the contract and delivery is the tender and receipt of the actual commodity in settlement of the contract. The settlement of contract occurs in two ways; cash settlement where the contract is settled with cash and physical

settlement where the contract is settled through delivery of the commodity. In practice, 98% of futures contracts are cash settled while only 2% are settled physically. The delivery has a series of procedures starting from the tender period till payout of funds and commodity to the contract sellers and buyers respectively.

### Model Questions

1. What is Commodity clearing house? Explain its workings and function.
2. Explain the settlement process of the futures contract.
3. Brief about the delivery of the futures contract.

### Additional Reading Material

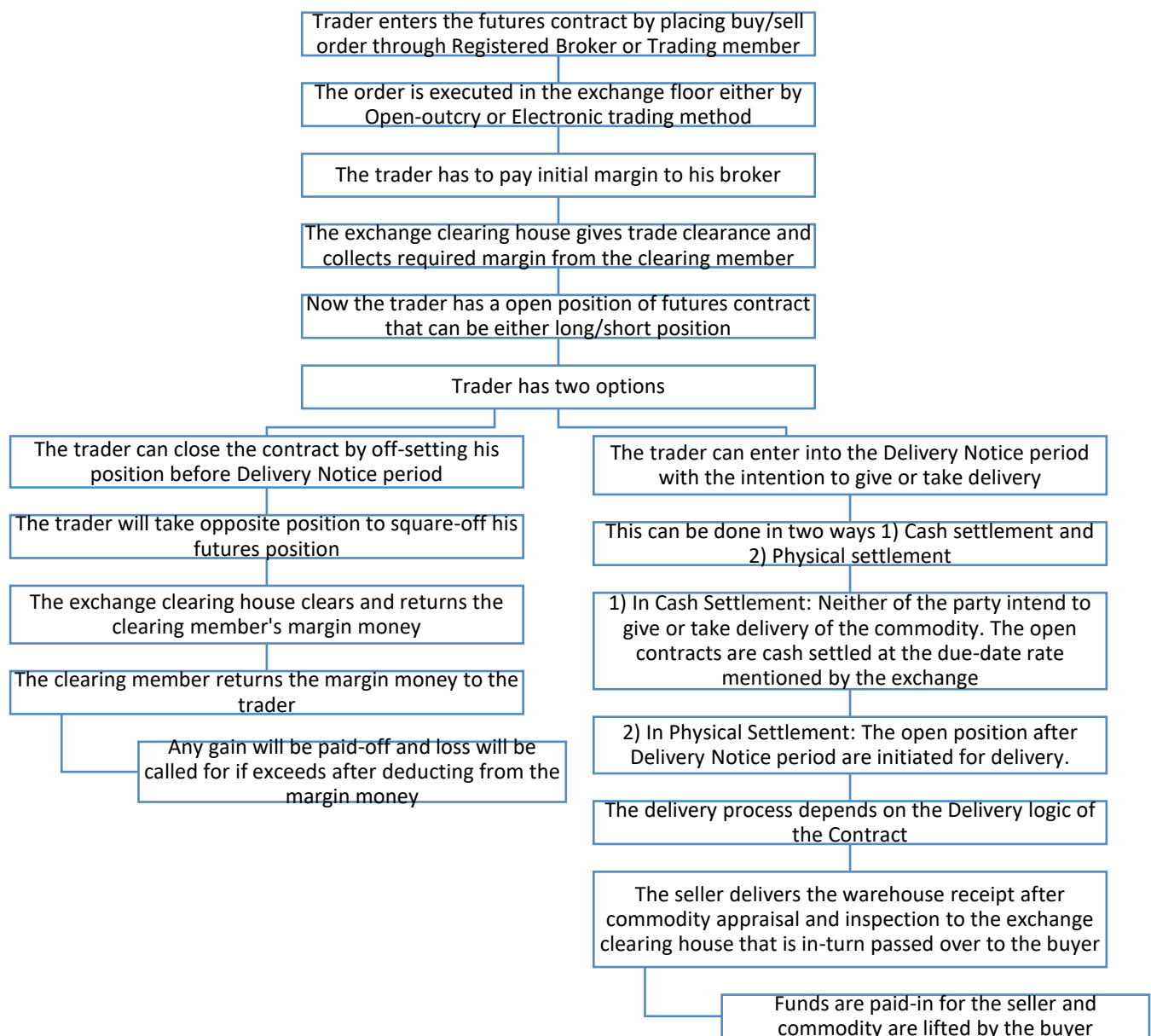


Figure 4.5 Life Cycle of Commodity Futures Contract

### 4.3 Mechanics of Forwards and Futures

It is widely known that most of the investors are riskaverse (i.e.,) who fears for risk. The risk or uncertainty cannot be avoided but can be reduced with the usage of derivatives thus, is considered as an important risk management tool. Forwards and futures are the two major and most widely used derivative contracts. For effective trading and to earn returns it is important to know about the mechanics of these contracts. Mechanics of the contracts give the idea about its working and situation when they give profit or loss. This chapter aims at providing basic understanding about the working forwards and futures and the content to be covered are

- Forwards
- Payoff of forwards
- Futures
- Payoff of futures

#### Forwards

Forwards is an unstandardized agreement between two parties to trade on an asset at an agreed future date for an agreed price today. It is traded in Over the Counter (OTC) market. These contracts are tailormade that differs from one another. Though these contracts are traded between known persons on personal trust, they suffer from counterparty risk as they are not regulated by anyone. Forwards are the first emerged derivative contracts and one of the most traded derivative instruments.

#### Pay off of Forward Contract

Payoff broadly means the act of getting a reward or the outcome of an action. In forwards, the trade is done directly between parties (i.e.,) there are no intermediaries, hence, the cost of trading is absent compared to other derivative contracts. Due to this, the profit or loss of forwards is directly affected by the rise or fall in the asset price.

Now, let's see the payoff of forwards

- Any contract has two parties involved in it, one the buyer of the contract and another the seller of the contract.
- Similarly, any asset has two positions, one the long position which is to buy the asset and another the short position which is to sell the asset.
- Thus, in a forward contract, the buyer will have a long position of the asset and the seller will have a short position of the asset.

#### A. Payoff of Forward Buyer

Forward buyer enters a forward contract due to the fear of the future price rise which he locks up today. Thus, there are three prices involved in a forward contract, one is the current spot price (or) market price of the commodity on the day of entering into the contract, Second is the forward price (i.e., the agreed price for executing the contract at a future period) that is predetermined (FP) and third is the actual spot price (or) market price (i.e., the future spot price) that prevails during the expiration day ( $SP_t$ ). The payoff for the long position can be determined as the difference between the Future Spot price and the Forward price.

**The Payoff for Long position = Spot price at the time of expiration - Forward contract price**  
**=  $SP_t - FP$**

The forward price remains same till expiry but, there can be two conditions of spot price prevailing in the market at the time of expiry such as

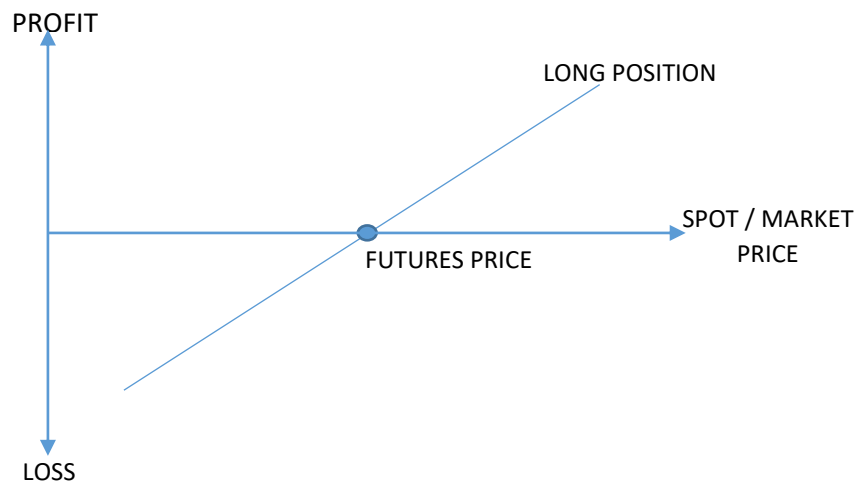
1. Increase in Spot Price at the time of expiry
2. Decrease in Spot Price at the time of expiry

The payoff in condition (1), when there is an increase in spot price at the time of expiry, the forwards buyer has to pay only the forward contract price, thereby mitigating his price risk resulting in a gain for him.

**Payoff for long position =  $SP_t - FP = \text{GAIN}$**

The payoff in condition (2) when there is a decrease in spot price at the time of expiry, again the forward buyer pays only the forward price. If the buyer would have traded in the spot he would have paid less. Thus, this condition results in a loss for the forward buyer.

**Payoff for long position =  $SP_t - FP = \text{LOSS}$**



**Figure 4.6 Payoff of Long Forwards**

**Example**

Let us consider Mr.X a buyer of a Forward contract who have agreed to pay Rs.12,000 per ton of wheat on March. The conditions of spot/market price during March are

1. The Spot price is Rs. 14,000 / ton
2. The Spot price is Rs. 13,000 / ton
3. The Spot price is Rs. 12,000 / ton
4. The Spot price is Rs. 11,000 / ton
5. The Spot price is Rs. 10,000 / ton

**Solution**

Here, we calculate the payoff for forwards buyer under the abovesaid market conditions.

**Payoff for long position =  $SP_t - FP = \text{GAIN} / \text{LOSS}$**

1.  $SP_t = 14,000$ ;  $FP = 12,000 \Rightarrow$  Payoff for forwards =  $14,000 - 12,000 = 2,000$  (**GAIN**)
2.  $SP_t = 13,000$ ;  $FP = 12,000 \Rightarrow$  Payoff for forwards =  $13,000 - 12,000 = 1,000$  (**GAIN**)
3.  $SP_t = 12,000$ ;  $FP = 12,000 \Rightarrow$  Payoff for forwards =  $12,000 - 12,000 = 0$
4.  $SP_t = 11,000$ ;  $FP = 12,000 \Rightarrow$  Payoff for forwards =  $11,000 - 12,000 = (-)1,000$  (**LOSS**)
5.  $SP_t = 10,000$ ;  $FP = 12,000 \Rightarrow$  Payoff for forwards =  $10,000 - 12,000 = (-)2,000$  (**LOSS**)

Thus, during an increase in the Spot Price at the time of expiry the forward contract buyer would gain a profit while during a decrease in the Spot Price at the time of expiry the forward contract buyer would lose.

**B. Payoff of Forward Contract Seller**

Similar to the forward contract buyer, the forward contract seller enters a forward contract with a fear of price fall that he locks up today. Similar to the long position, short position payoff is also determined as the difference between the spot price at the time of expiry ( $SP_t$ ) and the Forward price (FP).

$$\begin{aligned} \text{Payoff for Short position} &= \text{Forward price} - \text{Spot price at the time of expiry} \\ &= FP - SP_t \end{aligned}$$

As the forwards price remains the same till expiry, the market price can be in two conditions say,

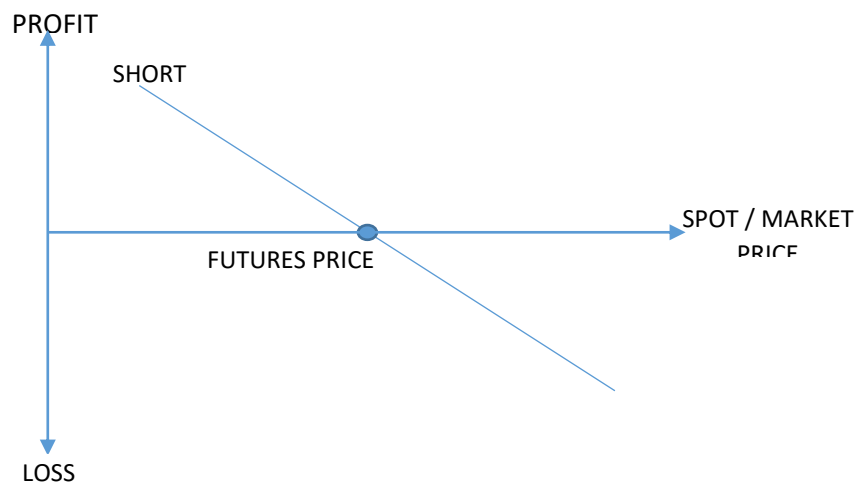
1. Increase in spot price at the time of expiry
2. Decrease in spot price at the time of expiry

In a condition where there is an increase in the spot price at the time of expiry, the seller has the possibility to earn higher in the spot market. Whereas, he gets only the agreed forward price due to the obligation of the forward contract. Thus, this condition results in loss payoff for the forward contract seller.

$$\text{Payoff for short position} = FP - SP_t = \text{LOSS}$$

In a condition where there is a decrease in spot price at the time of expiry, the seller has a possibility to get less price in spot market which is mitigated through forward contract, thereby resulting in a gain payoff for the forward contract seller.

$$\text{Payoff for short position} = FP - SP_t = \text{GAIN}$$



**Figure 4.7 Payoff of Short Forwards**

### Example

Let us consider the same example of long position payoff but from a forward contract seller's perspective. Say Mr.Y who is a forward contract seller has agreed to get Rs.12,000 per ton of wheat on March. The market conditions of spot price during March are considered to change as

- I. The Spot price is Rs. 14,000 / ton
- II. The Spot price is Rs. 13,000 / ton
- III. The Spot price is Rs. 12,000 / ton
- IV. The Spot price is Rs. 11,000 / ton
- V. The Spot price is Rs. 10,000 / ton

### Solution

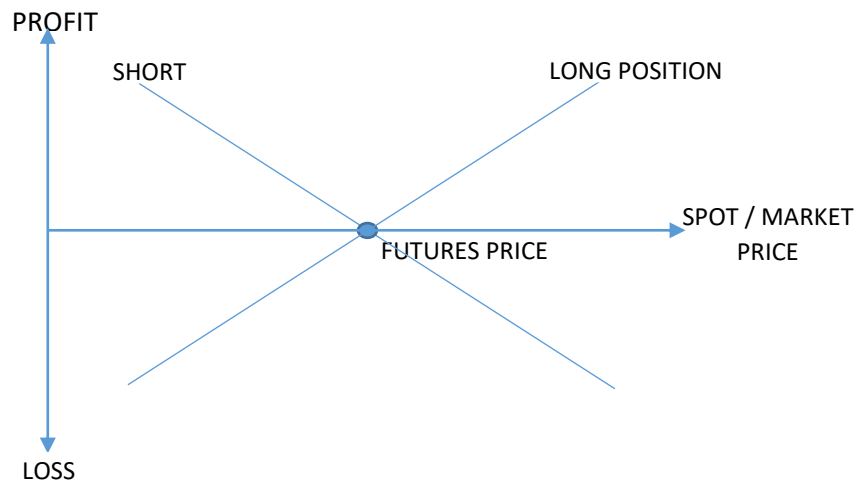
Based on the above said market conditions, the payoff of forwards seller will be;

$$\text{Payoff for short position} = \text{FP} - \text{SP}_t = \text{LOSS / GAIN}$$

1.  $\text{FP} = 12,000; \text{SP}_t = 14,000 ; \Rightarrow \text{Payoff for forwards} = 12,000 - 14,000 = ( ) 2,000 \text{ (LOSS)}$
2.  $\text{FP} = 12,000; \text{SP}_t = 13,000 ; \Rightarrow \text{Payoff for forwards} = 12,000 - 13,000 = ( ) 1,000 \text{ (LOSS)}$
3.  $\text{FP} = 12,000; \text{SP}_t = 12,000 ; \Rightarrow \text{Payoff for forwards} = 12,000 - 12,000 = 0$
4.  $\text{FP} = 12,000; \text{SP}_t = 11,000 ; \Rightarrow \text{Payoff for forwards} = 12,000 - 11,000 = 1,000 \text{ (GAIN)}$
5.  $\text{FP} = 12,000; \text{SP}_t = 10,000 ; \Rightarrow \text{Payoff for forwards} = 12,000 - 10,000 = 2,000 \text{ (GAIN)}$

Thus, during an increase in Spot Price at the time of expiry the forwards seller would incur a loss and during a decrease in Spot Price at the time of expiry the forwards seller would make profit.

By plotting the payoff of both the forwards buyer and forwards seller in a single graph, we can get a better understanding which is depicted in figure4.3.3.



**Figure 4.8 Payoff of Forwards**

**Table 4.4 Payoff of Forwards Contract**

	Long position	Short position
Profit	Unlimited	Limited to that of Forwards Price
Loss	Limited to that of Forwards Price	Unlimited

**Futures**

Futures are standardized contracts between parties to buy or sell an asset at a certain future date for a predetermined price. They are traded on exchanges which regulate the contracts thereby avoiding counterparty risk. The exchange frames the contracts and so remains the same for all trades upon the same asset, (i.e.,) the contracts are tailor made. To overcome the drawback of forwards, futures contract emerged. In Indian commodity exchanges, futures are the only derivative instrument traded upon all commodities.

**Payoff of Futures Contract**

In Futures, the exchange acts as an intermediary between the buyer and the seller. In order to safeguard the risk of default by the parties (i.e. counterparty risk), exchange collects good faith money from both the parties known as the “margin”. The margin will be refunded at the time of expiration or close out of the contract and so will not add up to the cost. Thus, Payoff of futures replicates the payoff of forwards. Futures payoff is also the difference between the spot price/market price at the time of expiry and the futures price.

- The futures buyer will have a long position of the asset with payoff being

$$\text{The Payoff of Futures} = SP_t - FP$$

- The futures seller will have a sort position of the asset with payoff being

$$\text{The Payoff of Futures} = FP - SP_t$$

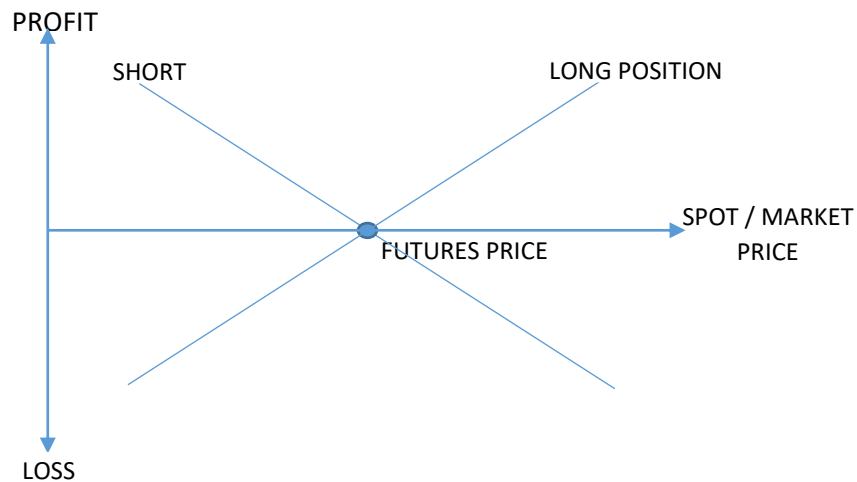


Figure 4.9 Payoff of Futures

Table 4.5 Payoff of Futures Contract

	Futures buyer	Futures seller
Profit	Unlimited	Limited to that of Futures Price
Loss	Limited to that of Futures Price	Unlimited

Every futures contract is marked to market at the end of each trading day for all open positions. The payoff is maintained by the exchange in separate accounts and settled with margin money thereby reducing the accumulation of credit risk for the parties (or) burden to incurring a loss during the time of maturity/expiration.

Forwards and futures are considered as the oldest derivative contracts, widely used as a risk mitigating tool. This provides a brief understanding about the working of these contracts in mitigating risk. The payoff of forwards and futures remains the same despite the difference in fundamental features of the contracts and both the contracts have contract buyer with a long position of the asset and contract seller with a short position of the asset.

- The Payoff for long position =  $SP_t - FP$
- The Payoff for short position =  $FP - SP_t$

Where, FP is Forwards/Futures price,  $SP_t$  is the Spot/Market price at the time of expiration.

The long position has an unlimited profit with a limited loss to that of forwards/futures price, whereas the short position has the reverse of it with unlimited loss and limited profit to that of forwards/futures price.

#### 4.4 Pricing of Commodity Futures

The previous sections covered the basics of the futures contract such as its contract specification, its life cycle, and its payoffs. Another most important thing to know about the futures contract is how it is priced. The futures as a derivative instrument is mainly used to overcome the price risk of the underlying asset. Thus, the calculation of futures price is important so as to know whether the prime



objective of derivatives is fulfilled by benefiting the trader. This is framed to elaborate on the pricing of futures by covering the concepts such as

- Carrying cost
- Convenience yield
- Cost of carry model
- Contango market
- Backwardation market
- Spot Futures convergence and relationship

### **Futures Price**

Futures price generally means the agreed price at which the delivery is to happen at an agreed future period. Thus, the delivery of commodity facilitates the link between the spot market/cash market and the futures market, thereby providing some distinct relationship between the spot price and futures price. Futures price is determined generally based on the cost of carry. The two important factors determining futures prices are

1. Carrying cost
2. Convenience yield

#### **1. Carrying Cost**

Trading a commodity in cash market does not involve any cost, but for trading in the futures market, the commodity is put on hold. The holding of a commodity may incur some cost such as storage cost, insurance, interest on capital and so on. All these costs incurred are together referred to as the carrying cost or cost of carry. The cost of carry is expressed as the cost per quantity for a period and varies from commodity to commodity. The cost of carry for wheat may not be the same for that of gold as both the commodities need a different type of storage and are used for different purposes. Thus, this cost of carry plays an important role in determining the trading relationship between the spot and futures price.

#### **2. Convenience Yield**

Another important determinant of futures price is the convenience yield. The convenience yield is nothing but the premium earned by a person upon holding the commodity. This has a negative effect on the cost of carry. In a market condition where there is no supply constraint (i.e.,) there is no shortage of commodity in future, holding the physical commodity will not give any yield. Thus, the convenience yield will not have an effect on futures price. Whereas in market condition with supply constraint in future, the person holding the physical asset will have an edge over the futures holder. This edge gives a yield known as convenience yield. Sometimes the earnings out of holding the commodity can be much more than the cost incurred for holding it.

### **Cost of Carry Model**

Cost of carry model is the most prevailing model in pricing the futures. The cost of carry model is similar to a time value of money model which gives the cost of buying a commodity at a future

period than buying it today and holding. Here, as the futures buyer avoids the cost of holding, he has to compensate this cost of carry to the bearer of the commodity. Thus, the cost of carry model expresses the futures price or forwards price as a function of the spot price and carrying cost.

If the cost of carry is expressed as a percentage of spot price,

$$F_{(0,t)} = S_0 (1 + C_{(0,t)})$$

Where,  $F_{(0,t)}$  is the Futures or Forwards price on day 0 for delivery of a commodity at time  $t$ ,  $S_0$  is the Spot Price on day 0 and  $C_{(0,t)}$  is the percentage of the cost to carry of a commodity till time  $t$ .

If, cost of carry is expressed as money value/amount,

$$F_{(0,t)} = S_0 + C$$

The futures price in the cost of carry model can also be expressed in natural logarithm way as

$$F_{(0,t)} = S_0 \times e^{(r+sc)t}$$

Where,  $F_{(0,t)}$  is the Futures or Forwards price on day 0 for a maturing contract at time  $t$ ,  $S_0$  is the Spot price at day 0,  $e$  denotes the natural logarithmic term,  $r$  is the riskfree interest rate,  $s$  is the storage cost expressed as percentage of spot price,  $c$  is the convenience yield expressed as percentage of spot price,  $t$  is the time to delivery expressed in terms of year. When convenience yield is not available the value of  $c$  becomes 0.

As per this pricing model, the value of futures will be higher than the spot (i.e.,) futures price will be more than spot price at day 0 as futures price adds the carrying cost of the commodity. Similarly, a futures price with 2 months expiry will be higher than the futures price with 1month expiry as the cost of carry for 2 months will be more than 1month carrying cost.

### Example

If the spot price of a commodity is Rs. 1,000 and the cost of carrying is Rs. 100 per year. Then 1year futures price of that commodity will be.

### Solution

$$S_0 = 1,000; C_{(0,t)} = 100; \text{ Then, } F_{(0,t)} = S_0 + C_{(0,t)}$$

$$F_{(0,t)} = 1000 + 100 = \text{Rs. } 1,100$$

The 1-year futures price will be Rs. 1,100.

### Example

If the spot price of a commodity is Rs. 1,000 and the cost of carrying is 10% for one year. Then 1year futures price of that commodity will be.

### Solution

$$S_0 = 1,000; C_{(0,t)} = 0.10; \text{ Then, } F_{(0,t)} = S_0(1 + C_{(0,t)})$$

$$= 1000 (1 + 0.10)$$

$$= 1000 + 100 = \text{Rs. } 1,100$$

The 1year futures price will be Rs. 1,100.

### Example

If the spot price of a commodity is Rs. 1,000 and carrying cost is given by storage cost at 8%, riskfree interest rate as 2% for one year.

### Solution

Note Here, no information about convenience yield is given, thus, assumed to be nil.

Thus, the 1 year futures price of the commodity will be  $F_{(0,t)} = S_0 \times e^{(r+sc)t}$

Where,  $S_0 = 1,000$ ;  $r = 0.02$ ;  $s = 0.08$ ;  $c = 0$ ;  $t = 1$  and numerical value of  $e = 2.718$

$$\begin{aligned} F_{(0,1)} &= 1000 \times e^{(0.02+0.08)1} \\ &= 1000 \times (2.718)^{0.10} = \text{Rs. } 1,105 \text{ (Rounded off)} \end{aligned}$$

The 1year futures price will be Rs. 1,105.

### Example

In the example 4.4.3, if convenience yield is present with 2% per year. Now, the 1year futures price of the commodity will be.

### Solution

Where,  $S_0 = 1,000$ ;  $r = 0.02$ ;  $s = 0.08$ ;  $c = 0.02$ ;  $t = 1$  and numerical value of  $e = 2.718$ , then,

$$\begin{aligned} F_{(0,t)} &= S_0 \times e^{(r+sc)t} \\ F_{(0,1)} &= 1000 \times e^{(0.02+0.08+0.02)1} \\ &= 1000 \times (2.718)^{0.08} = \text{Rs. } 1,083 \text{ (Rounded off)} \end{aligned}$$

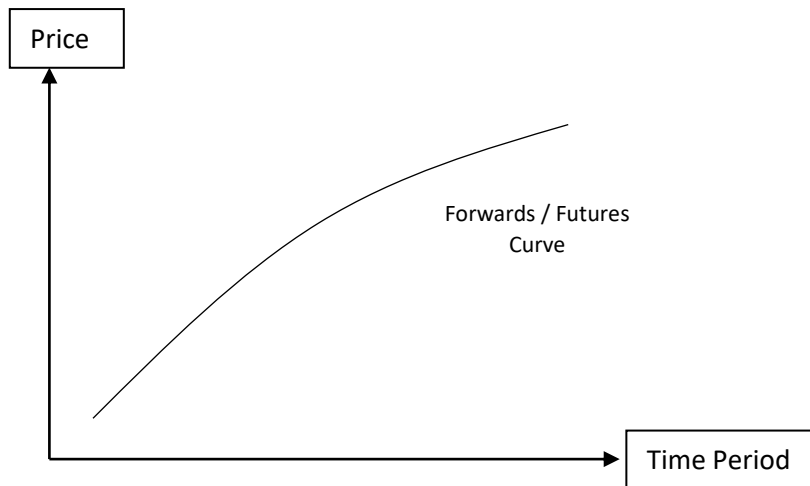
The 1year futures price will be Rs. 1,083.

From the above 3<sup>rd</sup> and 4<sup>th</sup> examples we can know that how cost of carry increases the futures price and how the convenience yield pulls it down.

### Contango Market

The futures price generally refers to the price of a commodity at the given future date (i.e.,) what will be the price of a commodity in a future date that is bought or sold at a price today? The futures trading is done by betting prices on the commodity based on the current and future market conditions by the trader that determines the futures price. The price of a commodity today is termed as spot price, the price of the same commodity after one month is termed as futures price and the price of the same commodity after two months is termed as deferred futures price. Thus, based on the current and future market conditions the market is broadly classified into the Contango market and Backwardation market.

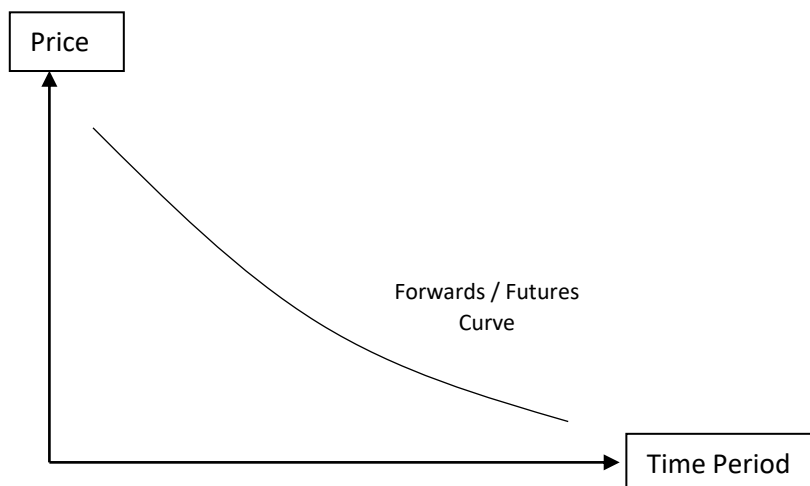
Contango market is a market condition where the demand is met by sufficient supply or even excess supply of the commodity. This Contango market condition is also known as normal market or premium market. In this market, the spot price will be lower than the near futures price and near futures price will be lower than the deferred futures price (the futures contract following the near futures contract). Thus, a Contango market shows an upward sloping curve of forwards or futures price, where the longer maturity contract trades with a higher price than shorter maturity contracts.



**Figure 4.10 Forwards or Futures Curve in Contango Market**

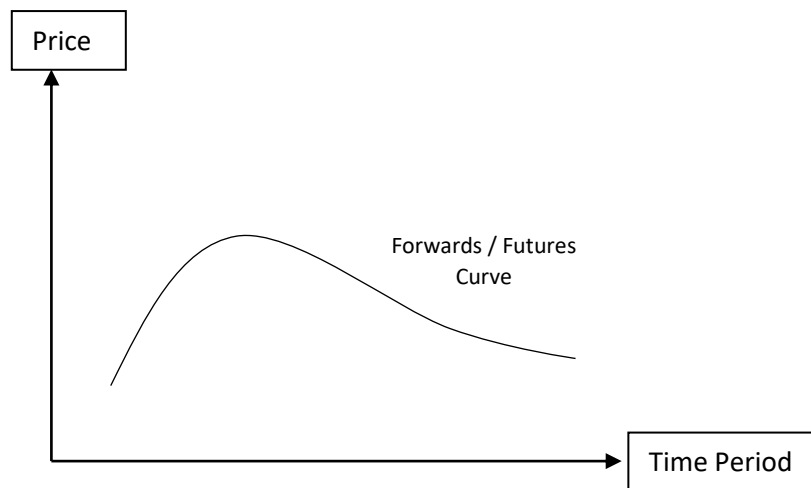
### Backwardation Market

Backwardation market is a market condition opposite to that of the Contango market (i.e.,) the demand is not met by the supply of the commodity. In this market condition, there will be a shortage in the supply of a commodity. Thus to ensure supply of commodity there will be a severe buying pressure in the spot market than the futures market. This leads to an increase in spot price than the futures price making the forwards or futures curve sloping downwards. The backwardation market is also known as an inverted market. In the inverted market, the spot price will be higher than the near futures price and the near futures price will be higher than the deferred futures price. (i.e.,) the longer maturity contracts have a lower price than shorter maturity contracts.



**Figure 4.11 Forwards or Futures Curve in Backwardation Market**

It is not compulsory that any one market condition will only exist. At times the futures curve may exhibit a combination of this two-market condition where supply will be adequate in near future but has constraints in deferred futures.



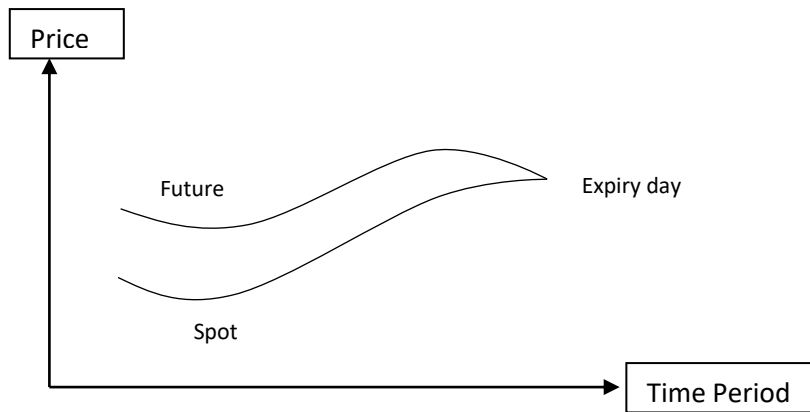
**Figure 4.12 Forwards or Futures Curve**

### Spot Futures Convergence

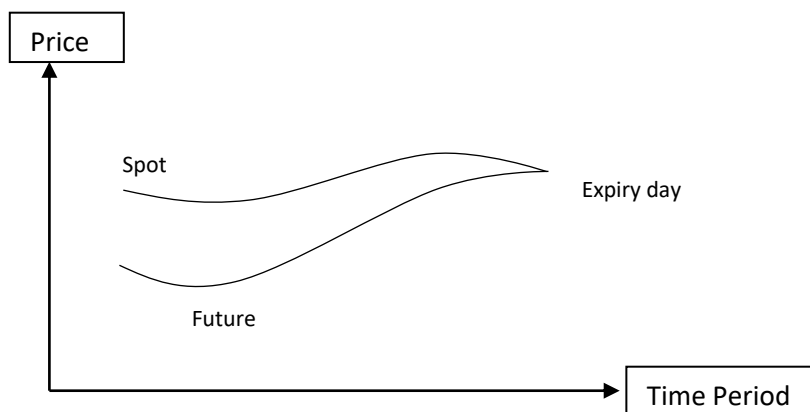
We have seen in the previous sections that the delivery of commodity facilitates a link between the cash/spot market and futures market and that the futures price will be higher than the spot price by the cost of carry of the commodity. But, at times the futures prices can be higher than the spot plus cost of carry. In this situation, there is an arbitrage opportunity of buying in spot and selling in futures. For example, A trader who needs castor seed after 1 month for production looks at the spot and futures price where the spot of castor seed trades at Rs. 1,200 per ton and futures of castor seed trades at Rs. 1,500 per ton. The carrying cost is Rs. 200 per ton for a period of 1 month. Thus, theoretical futures price will be spot price plus carrying cost at Rs. 1,400 per ton ( $1,200+200$ ), but in the market, a particular futures contract is traded at Rs. 1,500 per ton. The trader can earn a profit of Rs.100 per ton ( $1,500-1,400$ ) by buying in spot holding for a period of one month and selling in futures. This arbitrary opportunity can be on reverse also when spot trades at a margin lower than the cost of carry.

The traders will make use of these arbitrary opportunities through the delivery mechanism between spot and futures market. Thus, market forces of demand and supply will nullify the arbitrary effect between the prices thereby making the futures prices equal to spot price plus carrying cost. The carrying cost becomes lesser when holding period between spot and futures decreases. Thus, shrinking of the carrying cost which becomes zero on expiry of the futures leads to convergence of the spot and futures price becoming the same price on the expiry day.

But this convergence can be different in the two market conditions say normal market and inverted market. In a normal market, where the futures price is higher than the spot price, the prices converge with the shrinking of carrying cost. Whereas, in an inverted market where the futures price is lower than the spot price due to a shortage of supply, the market forces works to neutralize these prices making them coincide.



**Figure 4.13 Spot Futures Convergence in Normal Market**



**Figure 4.14 Spot Futures Convergence in Inverted Market**

**Example**

**(i). Normal Market**

The futures price is determined based on the spot price plus carrying cost. The carrying cost in a normal market diminishes as expiry of futures approaches and thus, leads to the convergence between spot price and futures price.

**Table 4.6 Spot Futures Convergence in Normal Market**

DATE	SPOT PRICE	CARRYING COST	FUTURES PRICE
1 <sup>st</sup> March	11,000	500	11,500
5 <sup>th</sup> March	11,150	400	11,550
10 <sup>th</sup> March	11,300	300	11,600
15 <sup>th</sup> March	11,450	200	11,650
20 <sup>th</sup> March	11,600	100	11,700
25 <sup>th</sup> March	11,750	0	11,750

**(ii). Inverted Market**

The futures price is determined based on the spot price plus carrying cost. The carrying cost in an inverted market will be negative due to the high convenience yield which diminishes as

expiry of futures approaches and thus, leads to the convergence between spot price and futures price.

**Table 4.7 Spot Futures Convergence in Inverted Market**

DATE	SPOT PRICE	CONVENIENCE YIELD	FUTURES PRICE
1 <sup>st</sup> March	11,000	500	10,500
5 <sup>th</sup> March	11,150	400	10,750
10 <sup>th</sup> March	11,300	300	11,000
15 <sup>th</sup> March	11,450	200	11,250
20 <sup>th</sup> March	11,600	100	11,500
25 <sup>th</sup> March	11,750	0	11,750

### Price Relationships

Price relationships are the price interactions either between the spot and futures or between succeeding futures contract. It is important to keep track of these price relationships to have a piece of better market information and manage commodity risk. There are two important price relationships which are the main concern for risk management in commodity futures, such as

- i. Basis
- ii. Spread

#### i. Basis

Basis quantifies the relationship between the cash/spot price and the futures price. The difference between the spot price and futures price while entering the futures contract is known as hedge basis. The basis is calculated as

$$\text{Basis (B}_t\text{)} = \text{Spot Price (S}_t\text{)} - \text{Futures Price (F}_t\text{)}$$

Where,  $B_t$  = Basis on day  $t$ ;  $S_t$  = Spot Price of a commodity prevailing on day  $t$  and  $F_t$  = Futures Price of that commodity prevailing on day  $t$ .

For example, If the Spot price of Turmeric on March 20<sup>th</sup> is Rs. 11,000 per ton and Futures price of Turmeric on March 20<sup>th</sup> is Rs. 11,180 per ton. Then the Basis of Turmeric on March 20<sup>th</sup> will be negative Rs. 180 per ton (11,000 - 11,180).

With reference to the market conditions, the basis will be negative in a normal market and positive in the inverted market. The basis will reduce as the expiry approaches which becomes zero on the expiry day due to the spot futures price convergence. Basis contains lot of information to the hedgers which will be discussed in the next.

#### ii. Spread

Spread quantifies the price relationship between two futures contracts. If it is seen with different delivery period contracts, then it is known as a calendar spread. If the price relationship of two different commodities is seen, it is known as commodity spread.

For example, If the Futures price of Turmeric on March 20<sup>th</sup> is Rs. 11,000 per ton and Futures price of Turmeric on April 20<sup>th</sup> is Rs. 11,380 per ton. Then the calendar spread of Turmeric between March 20<sup>th</sup> and April 20<sup>th</sup> will be Rs. 380 per ton (11,380 - 11,000).

The spread provides information about the arbitrage opportunity used by the arbitrageur which is also discussed in the next.

The futures price is linked to the spot price due to the delivery linkage between the spot and futures market. The futures price is determined by the spot price plus carrying cost as there will be a holding cost of a commodity to hold it till the future period. The pricing of a futures contract is determined by four components such as spot price, risk-free rate of return, storage cost and convenience yield. Thus, the futures price is calculated as the function of spot price and cost of carry. This model of pricing futures is known as the cost of carry model. The cost of carry includes storage cost and the risk-free rate of return that increases the futures price but, the convenience yield reduces the cost of carry. There are two market conditions one a normal market and another an inverted market. In a normal market the futures price will be higher than spot price but in an inverted market, the spot price will be higher than the futures price. The spot and futures price coincide at the time of expiry of futures contract due to the effect of market forces. The price relationship between the spot and futures price is known as basis and price relationship between two futures contracts is known as the spread. The usage of basis and spread are discussed in the next of hedging.

#### **To Do Activity**

Each one selects one commodity or certain time period. Try calculating theoretical futures prices for the commodities and compare them with the market futures prices.

### **4.5 Hedging Strategies Using Commodity Futures**

A futures contract is an important derivative instrument used to mitigate price risk. The act of using futures to mitigate risk is known as hedging. The person who uses futures for hedging his risks is known as hedger otherwise, the hedger is a risk-averse investor or trader. In one futures contract, there will be two persons involved, one will be risk-averse of one type of risk and another will be risk-averse of another type of risk. There are other market participants who use futures not to hedge their risk but to earn a profit with price fluctuations or arbitrage opportunities known as speculators and arbitrageurs. All the market participants can't always benefit from futures for which they adopt some strategies. This focuses to provide an insight of how futures are used by these market participants and the strategies used by them. The contents covered in this are

- Futures for Hedgers
- Hedging strategies
- Mismatch in Hedging
- Futures for Speculators
- Futures for Arbitrageurs

#### **Futures for Hedgers**

Any business or trade is exposed to price risk and the primary economic function of the futures contract is to mitigate the price risk known as hedging. Hedging is the act of buying or selling futures contract to offset the price risk incurred in future spot market due to the changes in future spot prices. The person participating in the futures market mainly to hedge his risk is known as a hedger. In other words, the hedger is a person who owns the commodity or plans to own it and is concerned



about the price changes of the commodity before selling (if he owns) or buying (if he plans to own) the commodity. The hedgers can be farmers, traders (wholesalers, retailers), producers, exporters or imports. The hedger actually buy or sell the commodity in cash/spot market at a required future period, but to offset his profit or loss he buys or sells the same commodity in the futures market on the current day.

For Example Mr.X has an oilmill who gets an order for soy oil to be delivered after six months. Now Mr. X has to buy soybean for manufacturing soy oil after five months. As the price for soy oil is already negotiated and fixed,he fears for the rise in soybean price that would affect his profit. So, he decides to hedge his risk through a futures contract. Thus, he enters futures contract to buy soybean today. The current spot market price of soybean is at Rs. 11,800 per quintal and futures market price is at Rs. 12,000 per quintal. On the required day of soybean, he buys it in the spot/cash market and offsets the long futures position by taking a short futures position.

- i. If the spot market price has risen to Rs. 12,200 per quintal as per the fear of Mr.X, he will incur a loss in the spot market by Rs. 400 (12,200 - 11,800) per quintal, but he would incur a profit in the futures market by Rs. 400 per quintal as the futures price have also increased to Rs. 12,400 per quintal. Thus, the profit earned in the futures market offsets his spot market loss, protecting his profit on soy oil sales.
- ii. If the spot market price has fallen to Rs. 11,600 per quintal to the surprise of Mr.X, he will now gain in the spot market by Rs. 200 (11,800 - 11,600) per quintal but will lose in the futures market by Rs. 200 (12,000 - 11,800) per quintal as even the futures price have fallen to Rs. 11,800 per quintal. The profit earned in spot market would offset his loss in the futures market, but pulling down the possible profit he would have earned on soy oil sales. As markets won't move as expected, the hedger has to accept the forfeiting opportunity of making gains while hedging. Hedging is valuable when it helps in eliminating price risk.

### **Hedging Strategies**

The hedger can be a buyer or a seller of the commodity whose risks are different and so they use different hedging strategies. The commonly used hedging strategies are

- i. Long Hedge, and
- ii. Short Hedge

#### **i. Hedging for Buyer**

A buyer who needs a certain commodity to meet his future requirement is said to have a shortage of that commodity and will take a long futures position (buy) to hedge against price risk on his future purchase of that commodity. This hedging strategy is generally referred to as a buying hedge or long hedge or input hedge. This hedging strategy is useful for producers & manufactures to lock up their future purchase price risk, wherein the increase in the price of long futures position will offset the increase in future purchase cost.

### **Example**

A spinning mill has accepted order in January to supply Cotton threads to a cloth manufacture in April. Let us assume 500 bale of Cotton is needed to complete the order. At the time of receiving the order Cotton trades at Rs.20,800 per bale and based on this, the miller worked out the price for the thread and have fixed it. But after that, he comes to know that futures of Cotton is trading at

Rs.21,500 per bale. This fears the miller on incurring a loss upon the order due to increase in raw material price.

### Solution

Here, the miller is short of Cotton but needs it in future. As he had fixed his selling price; to earn profit out of the agreed order, he has to reduce or maintain his cost. But the fear of an increase in raw material price threatens the miller's profit. This fear/risk of the miller can be mitigated by hedging in futures.

Let us assume that immediately after receiving the order, the miller takes a long position in futures with 20 futures contract (1 contract has 25 bales) so,  $20 \times 25 = 500$  bales.

In March when the miller is going to start production for the order, he buys Cotton in the cash market at Rs.21,500 per ton, which has gone up as he feared. Now, the Cotton futures are trading at Rs.22,200 which has also risen. Thus, the miller who was supposed to buy Cotton at Rs.20,800, bought it at Rs. 21,500.

$$\text{Value of Cotton in January} = 20,800 \times 500 = \text{Rs. } 104,00,000$$

$$\text{Value of Cotton in March} = 21,500 \times 500 = \text{Rs. } 107,50,000$$

$$\text{Notional loss in cash market} = 104,00,000 - 107,50,000 = \text{Rs. } \underline{\underline{3,50,000}}$$

By long hedge, where the miller bought the futures contract at Rs.21,500 in January which has risen to Rs.22,200 in March can negate the cash market loss as

$$\text{Value of Cotton futures in January} = 20 \times 25 \times 21,500 = \text{Rs. } 107,50,000$$

$$\text{Value of Cotton futures in March} = 20 \times 25 \times 22,200 = \text{Rs. } 111,00,000$$

$$\text{Net gain in futures market} = 111,00,000 - 107,50,000 = \text{Rs. } \underline{\underline{3,50,000}}$$

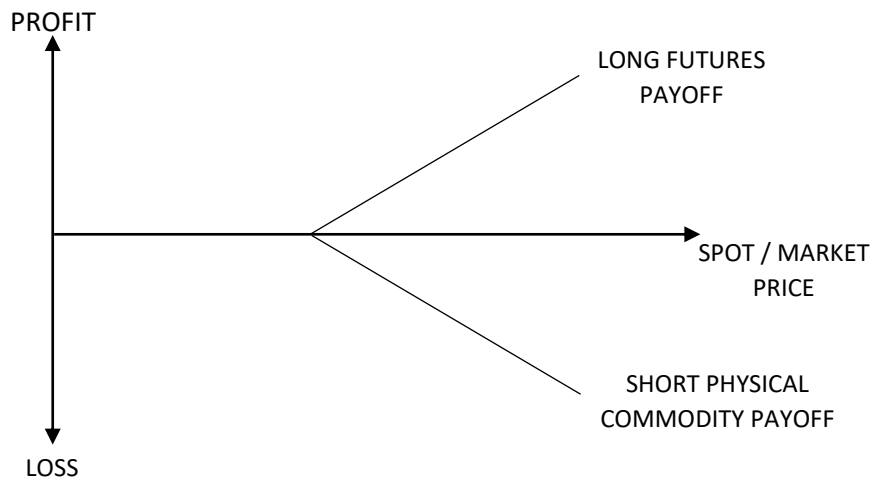
Thus, the overall profit/loss of the miller = Gain in futures market - Loss in cash market

$$= 3,50,000 - 3,50,000 = 0.$$

Hereby, the loss to be suffered due to an increase of raw material was offset by a gain in trading in futures.

**Table 4.8 Long Hedge Mechanism During Increase of Spot Price**

	Spot market	Futures market
<b>January</b>	Price of Cotton Rs. 20,800 per bale	Long Cotton futures at Rs. 21,500 per bale
<b>March</b>	Buys Cotton at Rs. 21,500 per bale	Short Cotton futures at Rs. 22,200 per bale
<b>Change</b>	Rs. 700 per bale (loss)	Rs. 700 per bale (gain)

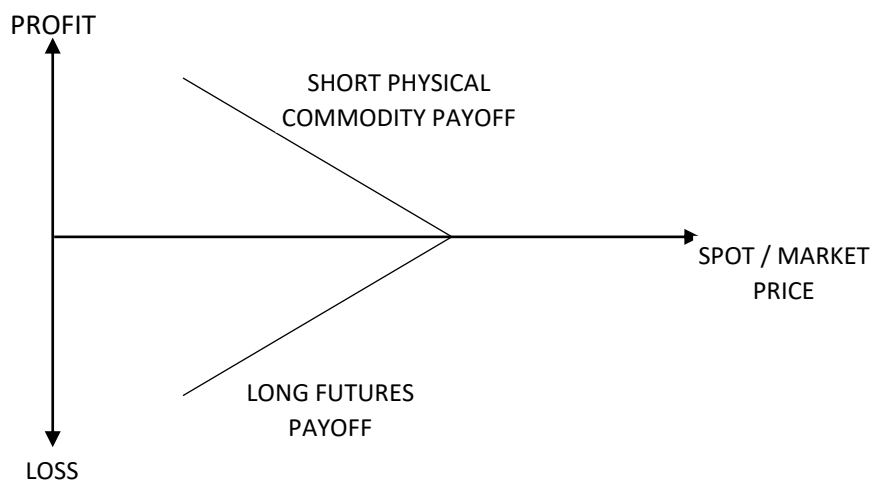


**Figure 4.15 Buying Hedge / Long Hedge Payoff During Increase of Spot Price**

If the price change happens in reverse with the spot market price during March declining to Rs.20,500 per bale and accordingly futures price to Rs.21,200 per bale. In this condition, the notional gain of spot market would be offset by the loss of futures market. Thereby not affecting the miller's profit of the order.

**Table 4.9 Long Hedge Mechanism During Decrease of Spot Price**

	Spot Market	Futures Market
<b>January</b>	Price of Cotton Rs. 20,800 per bale	Long Cotton futures at Rs. 21,500 per bale
<b>March</b>	Buys Cotton at Rs. 20,500 per bale	Short Cotton futures at Rs. 21,200 per bale
<b>Change</b>	Rs. 300 per bale (gain)	Rs. 300 per bale (loss)



**Figure 4.15 Buying Hedge / Long Hedge Payoff During Decrease of Spot Price**

**ii. Hedging for Seller**

A seller who has to sell a certain commodity in a future period is said to have long of that commodity and will take a short futures position (sell) to hedge against price risk on his

future revenue from that commodity. This hedging strategy is generally referred to as a selling hedge or short hedge or output hedge. This hedging strategy is used by producers and manufacturers to lock up product price to be delivered in a future time period.

**Example**

A farmer who is planning to sow Cotton in May which he can harvest by January expects 500 tons with a prevailing spot market price of Rs.22,000 per ton. Due to the harvest season effect, the farmer fears for fall in price during January. To protect his selling price, the farmer plans to use futures that trade at Rs.22,500 per ton in May.

**Solution**

Here, the farmer is long of Cotton that is to be sold in future for which he has taken a short position in 20 futures contract (1 contract has 25 tons, so, 20x25 = 500 tons) to protect against price fall.

In January being it a harvest month, the prices of Cotton falls as the farmer feared. Now, the spot market price of Cotton is Rs.21,000 per ton and futures trades at Rs.21,500 per ton. In this condition, the farmer who had oppority to earn Rs.22,000 per ton will now get only Rs.21,000 per ton. Thereby making loss in spot market as follows

$$\text{Value of Cotton in May} = 22,000 \times 500 = \text{Rs. } 110,00,000$$

$$\text{Value of Cotton in January} = 21,000 \times 500 = \text{Rs. } 105,00,000$$

$$\text{Notional loss in cash market} = 110,00,000 - 105,00,000 = \text{Rs. } 5,00,000$$

This loss can be negated by the short hedge taken by the farmer who offsets the short futures position taken in May at Rs.22,500 by taking equivalent long futures position in January at Rs.21,500. Thereby making a profit as follows

$$\text{Value of Cotton futures in May} = 20 \times 25 \times 22,500 = \text{Rs. } 112,50,000$$

$$\text{Value of Cotton futures in January} = 20 \times 25 \times 21,500 = \text{Rs. } 107,50,000$$

$$\text{Net gain in futures market} = 112,50,000 - 107,50,000 = \text{Rs. } 5,00,000$$

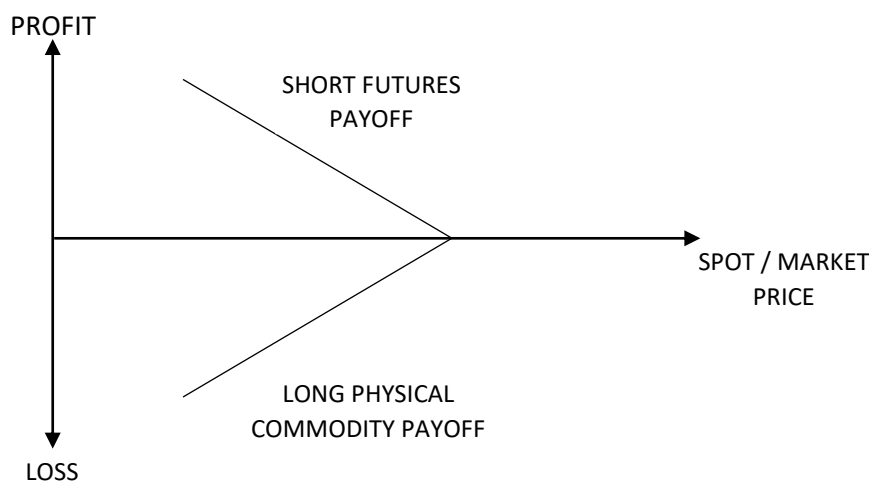
Thus the overall profit/loss of the farmer = Gain in futures market - Loss in cash market.

$$= 5,00,000 - 5,00,000 = 0.$$

The loss suffered due to harvest period effect was offset by a gain due to participating in futures.

**Table 4.10 Short Hedge Mechanism During Decrease of Spot Price**

	Spot market	Futures market
<b>May</b>	Price of Cotton is Rs. 22,000 per ton	Short Cotton futures at Rs. 22,500 per ton
<b>January</b>	Sells Cotton at Rs. 21,000 per ton	Long Cotton futures at Rs. 21,500 per ton
<b>Change</b>	Rs. 1,000 per ton (loss)	Rs. 1,000 per ton (gain)

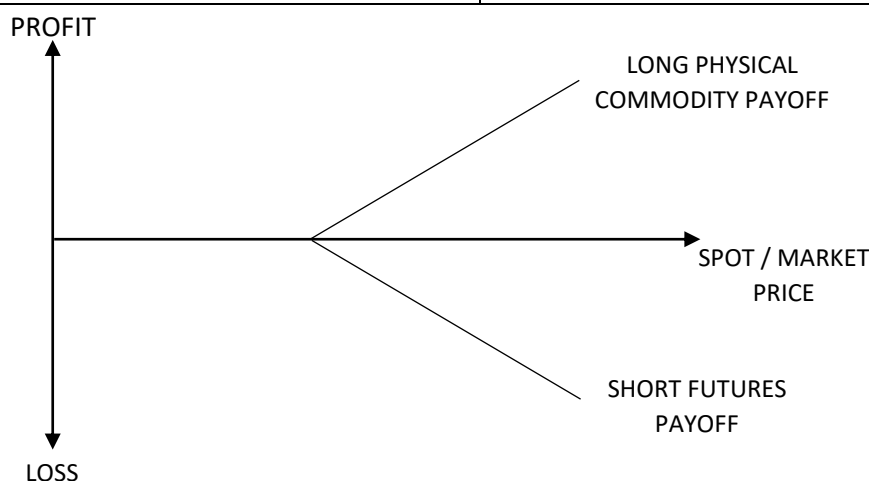


**Figure 4.16 Selling Hedge / Short Hedge Payoff During Decrease of Spot Price**

In reverse condition when the spot market price rises to Rs.22,500 per ton and futures price to Rs.23,000 per ton in January. The farmer has an opportunity to earn more in spot market than in May but will suffer from a loss in the futures market. In this condition also the gain in the spot market is offset by a loss in the futures market.

**Table 4.11 Short Hedge Mechanism During Increase Of Spot Price**

	Spot market	Futures market
<b>May</b>	Price of Cotton is Rs. 22,000 per ton	Short Cotton futures at Rs. 22,500 per ton
<b>January</b>	Sells Cotton at Rs. 22,500 per ton	Long Cotton futures at Rs. 23,000 per ton
<b>Change</b>	Rs. 500 per ton (gain)	Rs. 500 per ton (loss)



**Figure 4.17 Selling Hedge / Short Hedge Payoff During Increase of Spot Price**

The logic behind hedge is to “Do now what is to be done in future, so as to lock in the prices now”.The hedging can be of two types

1. Static hedge
2. Dynamic hedge

1. **Static Hedge**The main objective of the hedge is to protect against market risk, where the physical commodity price risk is locked up by futures irrespective of increase or decrease

in commodity price. The static hedge does not want to be rebalanced though other characteristics such as volatility of the commodity changes.

2. **Dynamic Hedge** In this type of hedge, the hedging in futures is done based on specific presumptions on cash market price movements that depend on fundamental market factors of demand and supply. The dynamic hedge needs rebalancing as the proportion of change in futures will not be linear to the change in price of the underlying. In the two hedging types, the dynamic hedge is prone to greater risk than a static hedge.

### **Mismatches in Hedging**

In the previous, we were introduced to the concept of basis which captures the difference between the spot price and futures price. We know that the spot prices and futures prices move in a definite but variable relationship to one another. The independent moves of the spot price and futures price results in the movement of basis. But, the market forces of demand and supply makes the spot and futures prices move in a matching pattern that makes basis more stable and predictable than prices. This makes hedgers more interested in knowing about the basis.

The basis becomes zero on expiry. But, there can be a nonzero basis in a certain situation which may result in incurring profit or loss to the hedgers. This risk is known as basis risk. Basis risk can be defined as a risk arisen due to an unexpected change in basis that leads the futures holder in not obtaining a perfect hedge. A perfect hedge means the profit made in one market can exactly offset the loss made in another market. Thus, hedging helps the hedger to mitigate price risk but exposes to basis risk which is an acceptable bargain for the hedger. The mismatches in hedging can be classified as

- i. Quantitative mismatch
- ii. Commodity mismatch
- iii. Delivery date mismatch
- iv. Strengthening and weakening of Basis.

#### **i. Quantitative Mismatch**

The futures contracts are standardized one that comes in standard quantity (lot size). Many a time, the spot market position of a trader may not be equal to any multiples of futures contract size. Here, the trader has to decide either to take more or less quantity of futures position than spot position to hedge that is generally referred to as over hedge or under hedge respectively. In an over hedging, the futures position taken to mirror the spot position would be higher in quantity. The excess of futures position that is not offset by the spot position is prone to risk known as the naked risk. Similarly, an under hedging has a lesser quantity of futures position than spot position wherein the un-offset spot position is prone to market risk. Thus, the mismatch of quantity affects the effectiveness of hedge by magnifying or diminishing the move of basis.

#### **ii. Commodity Mismatch**

Commodity mismatch is where the underlying commodity of futures contract varies from the actual commodity to be hedged. All commodities traded in the physical market will not have futures trading but may move in high correlation with related commodity futures or commodity futures with the same expiry. For example; sugarcane is not traded in futures but sugar is traded. So, a sugarcane farmer can hedge his risk using sugar futures as sugarcane is the raw material for sugar and their prices will be related. Here, the basis will

not be zero on expiry as the commodities differ and will move either magnificently or diminishingly based on the type of hedge and price movement.

**iii. Delivery Date Mismatch**

This mismatch occurs when the date of actual purchase in spot market varies from that of futures or the delivery date varies from futures expiry/maturity date. In this condition also, the basis will not converge on the expiry date leading to a profit or loss on the hedge.

**iv. Strengthening and Weakening of Basis**

The basis is the difference between the spot price and futures price. The basis is calculated upon the price difference between an established spot position and the undertaken futures position by a hedger, which is known as hedge basis. The hedger will hold his positions until he wishes to lift the hedge. During this period, both the spot price and futures price will be changing that leads to change in basis. The hedge basis will remain constant and the basis at the time of lifting the hedge will change. If the basis at the time of lifting the hedge is lesser than the hedge basis, then it is referred to as narrowing or strengthening of basis. At times, when the basis at the time of lifting the hedge is greater than the hedge basis, it is referred to as widening or weakening of basis.

**Example**

A commodity is traded at Rs.10,000 per ton in the spot market and its near month futures contract say December contract trades at Rs.10,500 per ton. The basis here is,

$$\text{Basis} = \text{Spot Price} - \text{Futures Price}$$

$$= 10,000 - 10,500 = ( ) \text{ Rs. } 500$$

After 15 days, the spot market prices have gone up to Rs. 10,200 per ton and the December futures contract is trading at Rs. 10,600 per ton. Now the basis becomes

$$\text{Basis} = 10,200 - 10,600 = ( ) \text{ Rs. } 400$$

Now, the basis has strengthened by moving from ( ) Rs.500 to ( ) Rs.400.

Instead of this, if the December futures contract is traded at Rs.10,750 per ton, then the basis would be

$$\text{Basis} = 10,200 - 10,750 = ( ) \text{ Rs. } 550$$

Now, the basis have weakened by moving from ( ) Rs.500 to ( ) Rs.550.

**Hedging Strategies and Basis Risk**

Thus, the change in basis during lifting the hedge concerns the hedgers. If there is no change in basis between the time period when the hedge is established and it is lifted, means that the profit/loss in futures exactly and completely neutralizes the profit/loss in the spot. In the case of cross hedging, the basis considers the difference of spot prices between the two commodities on hedge lifting day along with the lifting day basis and futures price of the related commodity. The strengthening of basis results in a higher loss in the spot market and lesser gain in the futures market for the long hedger and lesser loss in the spot market and higher gain in the futures market for the short hedger. Conversely, the weakening of basis results in a lesser loss in the spot market and higher gain in the

futures market for the long hedger and higher loss in spot market and lesser gain in futures market for the short hedger. This can be better explained with an example, as given below.

### Example

A commodity trading at Rs.10,000 per ton in the spot market in November has a nearmonth futures contract expiring in December trading at Rs.10,300 per ton. The market condition in December can be

1. Increase in Spot price to Rs.10,500 per ton and Futures price to Rs.10,700 per ton
2. Increase in Spot price to Rs.10,500 per ton and Futures price to Rs.10,900 per ton
3. Decrease in Spot price to Rs.9,500 per ton and Futures price to Rs.9,700 per ton
4. Decrease in Spot price to Rs.9,500 per ton and Futures price to Rs.9,900 per ton

### Solution

The basis risk is calculated for all four conditions as follows

For condition (i) and (ii) where there is a price rise in spot price at a future period, a hedger will go for a long hedge.

#### (i). Basis risk of long hedge in Condition (i)

	Spot market	Futures market	Basis
<b>November</b>	Spot price of the commodity is Rs. 10,000 per ton	Buy December futures at Rs. 10,300 per ton	( ) Rs. 300
<b>December</b>	Buy commodity at Rs. 10,500 per ton	Sell December futures at Rs. 10,700 per ton	( ) Rs. 200
<b>Change</b>	Rs. 500 loss per ton	Rs. 400 gain per ton	100 (strengthened basis)

Here, the hedge basis is ( )Rs.300, which changed to ( ) Rs.200 on lifting the hedge. The reduction in basis means the basis has strengthened. Thus, for a long hedge, strengthening of basis gives a higher loss for the hedger in the spot market and lesser gain in the futures market.

#### (ii). Basis risk of long hedge in Condition (ii)

	Spot market	Futures market	Basis
<b>November</b>	Spot price of the commodity is Rs. 10,000 per ton	Buy December futures at Rs. 10,300 per ton	( ) Rs. 300
<b>December</b>	Buy commodity at Rs. 10,500 per ton	Sell December futures at Rs. 10,900 per ton	( ) Rs. 400
<b>Change</b>	Rs. 500 loss per ton	Rs. 600 gain per ton	100 0(weakened basis)

Here, the basis has moved from ( ) Rs.300 to ( ) Rs.400 making an addition and this change of basis is referred to as weakening of basis. Thus, for a long hedge, weakened basis gives a hedger lesser loss in the spot market and higher gain in the futures market.

For condition (iii) and (iv), where the future period spot prices decline, a hedger will go for a short hedge.



**(iii). Basis Risk of Short Hedge**

	<b>Spot market</b>	<b>Futures market</b>	<b>Basis</b>
<b>November</b>	Spot price of the commodity is Rs. 10,000 per ton	Sell December futures at Rs. 10,300 per ton	( ) Rs. 300
<b>December</b>	Sell commodity at Rs. 9,500 per ton	Buy December futures at Rs. 9,700 per ton	( ) Rs. 200
<b>Change</b>	Rs. 500 loss per ton	Rs. 600 gain per ton	100 (strengthened basis)

Here, the basis has moved from ( ) Rs.300 to ( ) Rs.200 indicating the strengthening of basis. Thus, for a short hedge, strengthening of basis gives the hedger a lesser loss in the spot market and higher gain in the futures market.

**(iv). Basis risk of a short hedge**

	<b>Spot Market</b>	<b>Futures Market</b>	<b>Basis</b>
<b>November</b>	Spot price of the commodity is Rs. 10,000 per ton	Sell December futures at Rs. 10,300 per ton	( ) Rs.300
<b>December</b>	Sell commodity at Rs. 9,500 per ton	Buy December futures at Rs. 9,900 per ton	( ) Rs.400
<b>Change</b>	Rs. 500 loss per ton	Rs. 400 gain per ton	100 (weakened basis)

Here, the basis has moved from ( ) Rs.300 to ( ) Rs.400 indicating in the weakening of basis. Thus, for a short hedge, weakening of basis gives the hedger a higher loss in the spot market and lesser gain in the futures market. Thus, the summaries effect of basis risk on the long and short hedge is as given in the table 4.5.5.

**Table 4.12 Effect of Basis Risk on Long Hedge and Short Hedge**

<b>Basis change</b>	<b>Long hedge</b>	<b>Short hedge</b>
<b>Strengthen</b>	Unfavourable	Favourable
<b>Weaken</b>	Favourable	Unfavourable

The effectiveness of hedge will be better when the basis risk is lower. The basis risk will be absent for hedgers who oblige the futures contract with delivery but sometimes the delivery charges will be more than the loss on the basis. So, there are some important points to be noted while hedging

- Hedging is not done to improve financial outcome but is just to overcome uncertainty in prices.
- Hedging will not be perfect in reality that can vary due to various reasons, such as
  - Difference in the asset to be hedged and underlying one of the futures contracts.
  - Difference in the delivery date of the commodity and maturity date of the futures contract.
  - Trader being uncertain about the time of delivery of the commodity.

### Optimal Hedge Ratio

The hedgers often have a question of how many futures contract to be used to build an optimum hedge which is addressed by the hedge ratio. The hedge ratio denotes the proportion of futures position to be taken to hedge against the exposure. It is denoted by 'h' and is also known as the size of the hedge. Thus, hedge ratio is the ratio of the size of futures contract position divided by the size of exposure.

$$\text{Hedge Ratio} = \left( \frac{\text{Size of Futures Position}}{\text{Size of Exposure}} \right)$$

The futures position required to make a hedge can be determined by

$$\text{Size of Futures Position} = \text{Hedge Ratio} \times \text{Size of exposure.}$$

The hedge ratio to know the proportion of futures position against exposure is determined in three different strategic ways

- (i). **OnetoOne Hedge Ratio** The futures position taken to hedge the spot position will be equal. In this strategic way, hedge ratio, h is equal to 1.
- (ii). **Minimum Variance Hedge Ratio** The correlation between the price changes of spot and futures will not be perfect always. So, to overcome this the minimum variance strategy is used. As per this, the hedge ratio is determined as

$$h = \rho \times \left( \frac{\sigma_S}{\sigma_F} \right)$$

Where, h is the hedge ratio,  $\rho$  is the correlation coefficient between change in spot price and change in futures price for a time period of the hedge,  $\sigma_S$  is the standard deviation of change in Spot price and  $\sigma_F$  is the standard deviation of change in Futures price.

- (iii). **Beta Hedge** This strategy uses regression between the spot prices and futures prices to determine the hedge ratio as  $\Delta S = \alpha + \beta \Delta F$ , where,  $\Delta S$  is the changes in spot prices,  $\Delta F$  is the changes in futures price,  $\alpha$  is the constant and  $\beta$  is the coefficient. Though the independent variable coefficient,  $\beta$  explains the hedge ratio which is equal to the Minimum variance hedge ratio, this strategy helps in finding the robustness of the relationship between the price changes in spot and futures. The  $R^2$  of the regression equation, otherwise known as the coefficient of determination indicates the percentage of variability of  $\Delta S$  attributing the variability of  $\Delta F$ . This strategy helps in making better hedging decision for cross hedging. Higher the  $R^2$ , better is the hedging position.

### Example

A manufacturer requires 5,000 tons of Castor seed in three months for producing castor oil. To hedge the exposure, the manufacturer has planned to buy futures contract of Castor Seed. If, the standard deviation of change in castor seed price per ton over a period of three months is calculated as 0.050 for spot price and as 0.060 for futures price.

- (i). What will be the optimal hedge ratio with correlation coefficient of 0.9 between the price changes of spot and futures?
- (ii). How many castor seed futures contracts is needed for the manufacturer to hedge his exposure if the trading of futures is 10 tons?

## Solution

### (i). Optimal Hedge Ratio

$$h = \rho \times \left( \frac{\sigma_S}{\sigma_F} \right)$$

$$h = 0.9 \times \left( \frac{0.050}{0.060} \right)$$

$$h = 0.9 \times 0.83 = 0.747 \sim 0.75$$

The Optimal Hedge ratio is 0.75, which says that 1 futures contract offsets 0.75 risk in spot price.

### (ii). Number of Castor seed futures to be bought

$$\text{Futures Position} = \text{Hedge Ratio} \times \text{Size of exposure}$$

$$= 0.75 \times (5000/10)$$

$$= 0.75 \times 500 = 375 \text{ futures contract}$$

Thus, 375 Castor seed futures contracts is to be taken to hedge the exposure of 5000 tons of Castor Seed.

## Example

A trader of sunflower oil is intending to hedge his risk, but sunflower oil is not traded in the futures market. The trader can go for crosshedging with palm oil futures or soy oil futures that are traded. But, he has a question to opt which commodity and how much quantity to use for hedging?

## Solution

The trader has derived the regression for sunflower oil spot prices and futures prices of palm oil and soy oil. The equations are

$$\Delta S (\text{Sunflower oil}) = 1.1 + 0.76 \Delta F (\text{Palm oil}), R^2 = 0.782$$

$$\Delta S (\text{Sunflower oil}) = 0.8 + 0.34 \Delta F (\text{Soy oil}), R^2 = 0.567$$

The above equations show higher  $R^2$  for Palm oil futures which explains that the Palm oil futures explain 78.2% of Sunflower oil spot. Thus, the trader will get maximum hedging benefit by opting Palm oil futures with 0.76 futures position to cover 1 spot position.

## Rolling the Hedge

This type of hedging strategy arises when there is a need to hedge an exposure with longer maturity than the available futures contracts (i.e.,) single futures contract is not available with that long period of maturity. In such situation number of futures contracts are used to hedge till the maturity period of the exposure one by one by rolling the hedge.

For example A trader requires Pepper after one year, but its futures contracts are available only for 4 months. Here, to hedge his exposure, the trader can do the following actions

<b>Time in Months</b>	<b>Action</b>
0	Long Pepper Futures contract 1 till maturity of the 4 months
4	Short (closeout) Pepper contract 1 Long Pepper Futures contract 2 till maturity of the next 4 months
8	Short (closeout) Pepper Futures contract 2 Long Pepper Futures contract 3 till maturity of the next 4 months
12	Short (close out) Pepper Futures contract 3.

Depending upon the exposure period, this rolling of hedge can be repeated number of times. Thus, rolling the hedge strategy involves hedging the exposure of a commodity over certain period with near month futures contracts. When the near month futures contract expires, it is squared off by taking opposite position and the hedge position is rolled over to the next near month futures contract and so on till the maturity of exposure. In this strategy, as there are number of futures contracts opened and closed, there will be number of basis and number of uncertainties affecting these bases generally referred to as rollover basis. The basis risk for the rolling hedge strategy is determined by comparing the hedge basis with the basis of the last futures contract that is used to complete the rollover exercise.

#### **Tailing the Hedge**

Taking a futures position requires a payment of initial margin which can add up the high cost for the hedger. This cost can be reduced with the tailing the hedge strategy. In this strategy, instead of taking the entire required futures position on the start date, the hedger starts with taking lesser number of the futures contract that he keeps adding till the contract maturity date in such a way that upon expiry day the required futures position is taken. As the futures position are taken on different dates, the initial margin will also differ. Thus, average leverage will be lesser than ordinary hedging. In this strategy, the hedger's payoff will exactly match the zero-interest payoff.

#### **Futures for Speculators**

Speculator is the person who doesn't want to hedge his risk but to make a profit from the price fluctuations. Generally, in a market, all hedger will not be counterpartied by another hedger. It is impossible to find an offsetting hedger for executing a hedge. Here comes the role of the speculator. Hedger is a riskaverse person and speculator is a risktaker person. Therefore, a speculator is the one who always plays the counterparty role of a hedger. Without speculators, the market cannot be more active and liquid.

The speculators rarely show interest in owning the commodity. They buy or sell the futures contract expecting a price rise or fall to make a profit, as futures price are said to be a prediction of spot price at the future time period. They use various strategies such as

- I. Going Long
- II. Going Short
- III. Spread

### I. Going Long

Going long strategy is used by the speculator to earn a profit when the prices are likely to rise in future. In this strategy, the investor will buy a futures contract at a price today and sells it in a future period after a rise in price thereby making a profit.

#### Example

A speculator buys December futures contract of Chana at Rs.10,000 per ton in November. On 3<sup>rd</sup> of December when Chana futures price is at Rs.10,500 per ton the speculator sells it. The trading of Chana futures is 10 tons.

#### Solution

Here, In November the buying value of Futures is =  $10,000 \times 10 = \text{Rs. } 1,00,000$

On 3<sup>rd</sup> December the selling value of Futures is =  $10,500 \times 10 = \text{Rs. } 1,05,000$

Profit/Loss = Selling value - Buying value  
=  $1,05,000 - 1,00,000 = \text{Rs. } 5,000$  (Profit)

This strategy may also incur a loss to the speculator if his market expectation of price rise goes wrong with fall in futures price, where he has to sell at a lower price than his purchase price.

### II. Going Short

Going short strategy is used by the speculator to earn a profit when the prices are likely to fall in future. In this strategy, the investor will sell a futures contract at a price today and buy it at a lower price at some future period thereby making a profit.

#### Example

A speculator sells January futures contract of Turmeric at Rs.15,000 per ton in December. During 15<sup>th</sup> of January, he buys the January futures contract of Turmeric at Rs.14,800 per ton. The trading of Turmeric futures is 10 tons.

#### Solution

In December upon selling, Turmeric futures value is =  $15,000 \times 10 = \text{Rs. } 1,50,000$

On 15<sup>th</sup> January upon Buying, Turmeric futures value is =  $14,800 \times 10 = \text{Rs. } 1,48,000$

Profit/Loss = Selling value - Buying value  
=  $1,50,000 - 1,48,000 = \text{Rs. } 2,000$  (Profit)

This strategy will incur a loss to the speculator if there is a price rise where, he would have to buy at a higher price than his selling price.

In the above strategies, the speculator will pay initial margin that provides him the leverage which may also increase his loss in adverse conditions with additional margins.

### III. Spreads

Spread generally refers to the difference between the bid and ask prices of any asset. The trader trades (buy or sell) to make a profit from the gap of price relationship instead of a rise or fall in prices. The trader who does trading using spread is known as spread trader. In this type of strategy, the speculator or spread trader will use the price difference between two futures contract to earn a profit. The various spreads generally used are

#### a) Intra Commodity Spread

In this spread, the price difference between two futures contracts with different expiry is used to earn a profit. In this, a trader looks for higher gain from winning futures and lesser loss from losing futures. The trader buys one contract and sells another contract with different delivery months of the same commodity at the same time. This spread can also be known as a calendar spread, time spread, intra market spread, Horizontal spread. There are various types of intra commodity spread such as

- **Bull spread** Buying a near month futures contract and selling a far month futures contract while prices are in rising trend.
- **Bear spread** Selling a near month futures contract and buying a far month futures contract while prices are in declining trend.

**b) Inter Market Spread**

This spread use price difference of two different commodities futures contract (i.e.,) related commodities with the same expiry. The investor longs futures contract in one commodity and short futures contract of another commodity with the same expiry. Though the prices of both commodities move in same direction, the price difference of the two commodities helps the investor to earn a profit.

**c) Inter Exchange Spread**

In this spread, the market positions are taken in two different exchanges for the same commodity and the same expiry.

**Futures for Arbitrageurs**

Arbitrageurs are traders who use the arbitrage opportunity of the market to earn a profit. Even the arbitrageurs act the counterparty for hedgers along with speculators. But the arbitrageurs some time holds the commodity if returns are higher.

- If the futures prices rise more than the spot prices, the trader can buy in the physical market, hold them till the expiry of futures and deliver them at a higher cost, earning a profit.
- If the futures prices fall below the fall in spot prices, a trader with long of a commodity can sell it now at spot price and buy it in the futures market at expiry at a lower price that earns a profit, thereby the trader can again have the long position of the commodity.

But the arbitrage opportunity will not persist for a longer period, thus, speed is more important in earning through arbitrage. The arbitrage opportunity of price discrepancies of a commodity in spot and futures market is known as the commodity spot futures arbitrage. There can be two possible trades related to commodity spot futures arbitrage.

- 1) Cash and Carry Trade
- 2) Reverse Cash and Carry Trade.

**1) Cash and Carry Trade**

The arbitrage opportunity present in this type of trade is when the sum of buying cost in the spot and carrying cost is lower than the selling price in futures. This is also known as basis trading. The strategy used by a trader in the cash and carry trade is

- Buy a commodity in spot market with borrowed money at a lower price
- Take a short position in futures for that commodity
- Hold the physical commodity till futures expiry
- Deliver the commodity upon futures expiry at a higher price
- Repay the borrowed money with interest.

Thus, the Cash and carry trade involves long the commodity and short the futures.

## 2) Reverse Cash and Carry Trade.

The arbitrage opportunity present in this type of trade is when the selling price of a commodity is greater than the buying cost of the commodity in futures. Thus, the reverse cash and carry trade involves short the commodity and long the futures. The strategy used by a trader in reverse cash and carry trade is

- Short sell a commodity and get money
- Lend the money for interest
- Take a long position in futures for that commodity and hold till expiry
- Upon delivery buy the commodity at a lower price
- Cover the short sale with the commodity received.

Hedging is the primary function of a futures contract that intends to reduce price risk of an anticipated buy or sell at the future time period. The persons such as farmers, producers, manufacturers, exporter and importer who use futures to hedge their risk are known as hedgers. To make effective use of futures to mitigate risk the hedgers use various strategies such as long hedge and short hedge. The market participants such as speculators and arbitrageurs act as the counterparty for hedgers as they are risktakers also uses futures contract, not to hedge their risk but to earn a profit. They also use strategies to earn more profit. Speculative strategies are going long, going short and spreads and arbitrage strategies are cash and carry trade and reverse cash and carry trade. The strategies are taken up with some market assumption and may also backfire if market predictions go wrong. So, before going for hedging strategies it is important to know about concepts like basis that gives the price difference between spot and futures and optimal hedge ratio which denotes the number of futures contract to be used to hedge against an exposure. These strategies show how futures can be used in different ways by different market participants to hedge risk and earn a profit.

### To Do Activity

Divide the class into teams and collect information about industries dealing with commodities. Analyze their risk management strategy and build your own strategy.

### Case Study

#### Case 1

Mr. SreeRamalu is a maize farmer. He had sown maize seeds in his 2hectare land during June 2011 with an intention to harvest 10 quintals of maize by November 2011. The price of maize at the time of sowing was Rs. 1,220 per quintal. His past experience reveals that the price of maize during the month of November would be Rs. 900 per quintal due to heavy supply of the same from his fellow

farmers in the country. As consequence SreeRamalu will lose about Rs. 320 per quintal. In order to get out of such a huge loss due to market forces, SreeRamalu seeks advice from a financial expert to find a solution to this crisis. If you were the financial expert, what will be your suggestion to SreeRamalu on the following context?

- a) Is it possible to save SreeRamalu from the potential loss using any of the derivative products? If so what product do you recommend?
- b) Suppose you have decided to device Commodity Futures to save SreeRamalu from loses, what strategy will you follow to tame the risk?
- c) Due to heavy demand for maize, the price of maize shows an increasing trend from September onwards which is expected to touch Rs. 1,600 per quintal by the end of November. What changes will you prefer to the strategy you have already deployed in question 'b'?
- d) Among Forwards and Futures, which product will you suggest SreeRamalu to hedge his risk? Justify your answer.

## Case 2

Commodity futures were introduced in the Indian Market to assist the farmers and traders to hedge the price risk associated with the commodities they produce. If futures (as a hedging tool) were effectively used, the farmers can reduce the risk associated with the commodity price fluctuations. For that, regular convergence of spot and futures price is necessary. If you try to calculate the theoretical price of futures, the futures price will converge with the spot price regularly. However, when it comes to reality, the theory may not hold good. Let us examine a few circumstances in which the futures price has failed to converge with the spot price

- a) During September 2012, Chana price stood at Rs.4,500 per ton whereas the futures price was Rs. 3,700 per ton. During October 2012, the spot price was Rs. 4,550 per ton against a futures price of Rs. 3,600 per ton. Similarly, the futures price held below the spot price till March 2013.
- b) Same is the case of pepper prices during 2012 13. The futures price stood far below the spot price from September 2012 to March 2013.
- c) While Turmeric spot price was Rs.14,500 in October 2010, the futures price stood at Rs. 8,000. The spot and futures didn't converge till March 2011.
- d) A similar phenomenon had observed in Mustard, Coriander, and Wheat during 2012 13.

Based on the above observations, answer the following questions?

- a) Whether convergence of spot and futures are necessary for hedging? Justify your answer.
- b) The theoretical futures price moves in tandem with the spot price, but the market price doesn't. Why it is so?
- c) Explain the reasons for nonconvergence of both the prices.
- d) When the futures price is above the spot price, is it advisable to take a hedge position? Justify your answer?
- e) Is it possible to take a hedge position when the futures price is below the spot price? Justify?



### **Model Questions**

1. What is contract specification? Explain.
2. What is margin and explain its types?
3. What are the other risk management measures present in a contract specification
4. What is carrying cost and Convenience Yield?
5. Explain the strategies used for Hedging.
6. Explain the strategies used by Arbitrageurs.

# Chapter 5 Options on Commodities and Its Indexes

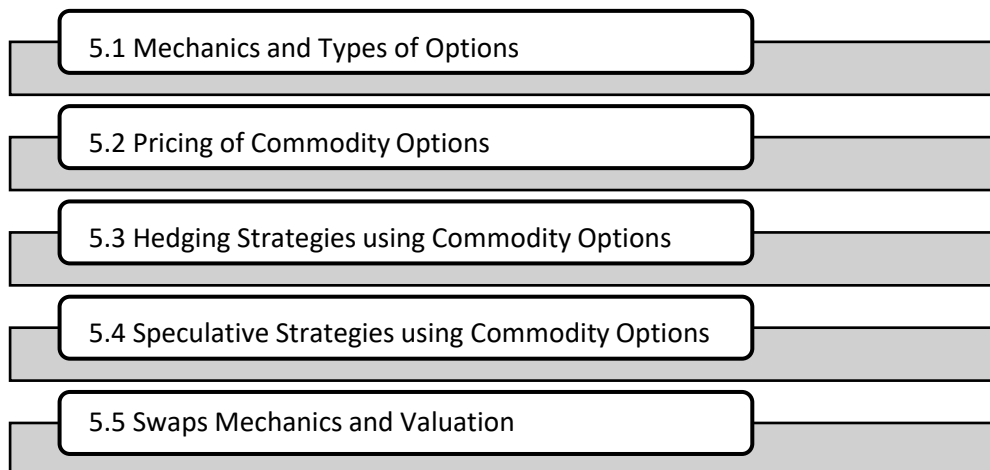
## Introduction

Apart from Forwards and Futures, the other two derivative instruments such as Options and Swaps are also attractive for traders. This fifth Chapter exclusively covers in detail about the Options and Swaps which gives a complete knowledge on derivative instruments.

## Objectives

- To introduce and explain about Options, its terminologies and mechanics.
- To explain about the pricing of Options and Options Greeks.
- To elaborate the various Options strategies commonly used by Hedgers.
- To elaborate the various Options strategies commonly used by Speculators.
- To introduce and explain about Swaps, its mechanism, pricing and Swaption.

## Structure



## 5.1 Mechanics and Types of Options

There are four major derivative instruments such as forwards, futures, options, and swaps. The last Chapter covered in detail about the first two derivative instruments of forwards and futures. Options is another important derivative instrument attractive than futures. Futures contract helps a trader to hedge his price risk but at the same time will also lock up potential profit. Options contract overcomes this drawback of futures by providing a right to the options buyer to execute the contract at his discretion. This Chapter deals with the other two derivative instruments of options and swaps. To start with, this focuses on the basics of options, its terminologies, and payoff of options by covering the following topics such as

- Options
- Types of options
- Options Terminology
- Value of Money
- Options Moneyness

- Payoff of Options

### Options

Option is a contract between two parties that gives its buyer the right but not the obligation to buy or sell a commodity or any financial asset at an agreed price in an agreed time. The option has two parties, one is the buyer of the contract who enjoys the right but not the obligation to execute the contract and another one is the writer or seller of the contract who gives the right to the buyer thereby obliged to execute the contract on buyers demand. The main specialty and difference of options contract from futures is the right of the buyer. All other aspects of contract such as exchange trading system, standardization of contracts and so on are similar to that of the futures contract.

The options in the Indian commodity market is Options on Futures (i.e.,) the underlying of the commodity options contract is a commodity futures contract. The Call option gives its holder the right to buy the commodity futures contract and the Put option gives its holder the right to sell the commodity futures contract.

### Options Terminology

In Futures, we learned about its terminologies of futures price and margins. Unlike futures, option has many term analogies dealt with it. The various options terminologies and their explanations are as follows

- a) **Options Holder** The person who buys the contract. He has the right but not the obligation to execute the contract. He is also known as Options buyer and has a long position of the Options contract.
- b) **Options Writer** The person who sells the contract. He is the one who gives the right to the buyer. He is obliged to execute the contract on the buyer's demand. He is also known as Options seller and has a short position of the Options contract.
- c) **Strike Price** It is the price at which the parties agree to execute the contract. (i.e.,) price to buy the underlying asset in a call option and the price to sell the underlying asset in the put option.
- d) **Premium** It is the money paid by the options holder to the options writer for the right given to the former by the later. It is considered as the cost of an option. It should be paid whether the option is exercised or not.
- e) **Exercise date** It is the future date when the options holder invokes his right to execute the options and the options writer obliges it. In American options, it can be any day during the life of an option and in case of European option it will be the contract expiration day.
- f) **Offsetting of Options** It is the act of taking opposite position of the holding options contract at the same strike price and same expiry date. For example; if a trader has bought (long position) Call Options at a specified strike price for some expiry date, while offsetting he sells (short position) Call Options at the same strike price and expiry date or if a trader has sold (short position) Call Options at a specified strike price for some expiry date, while offsetting he buys (long position) Call Options at the same strike price and expiry date.

### Types of Options

Options contracts can be broadly classified based on two aspects such as

- 1) Trade
- 2) Expiry

## 1) Options Based on Trade

Based on the trading activity of buy and sell, options can be classified as

- a) **Call Options** It is the one which gives its buyer the right but not the obligation to buy an agreed quantity of a commodity or any financial asset for an agreed price on a certain/specific future date. To illustrate, take a trader is in need of Castor Seed after three months which is currently trading at Rs. 1,800 per ton (Spot price) and he fears for price rise. Instead of buying a futures, the trader can buy a three month Call Options at a strike price of Rs. 2,000 per ton. Upon expiry if the spot price rises as per the fear of the trader, say to Rs. 2,100 per ton, then the trader will execute the Call Options and buy Castor Seed at Rs. 2,000 per ton through Options market. If instead of price rise, the spot price has decreased to Rs. 1,700 per ton upon expiry, then the trader will not execute the Call Options and will buy the Castor Seed directly from the Spot market at Rs. 1,700 per ton. Thus, the Call Options of Castor Seed is the right but not the obligation to buy Castor Seed to the Options buyer (i.e.,) the trader.
- b) **Put Options** It is the one which gives its buyer the right but not the obligation to sell an agreed quantity of a commodity for an agreed price on a specific future date. **To illustrate** Take a farmer who is expecting his crop of Castor Seed to be ready for harvest after three months which is currently trading at Rs. 1,800 per ton (Spot price) and the market is bearish. Thus, to protect his risk of price fall, the farmer wishes to use derivatives. Instead of selling a futures, the farmer can buy a three month Put Options at a strike price of Rs. 1,700 per ton. Upon expiry if the spot price falls as per the fear of the farmer, say to Rs. 1,500 per ton, then the trader will execute the Put Options and sell Castor Seed at Rs. 1,700 per ton through Options market. If instead of price fall, the spot price has increased to Rs. 1,900 per ton upon expiry, then the farmer will not execute the Put Options and will sell the Castor Seed directly in the Spot market at Rs. 1,900 per ton. Thus, the Put Options of Castor Seed is the right but not the obligation to sell Castor Seed to the Options buyer (i.e.,) the farmer.

## 2) Options Based on Expiry

Based on the expiry or exercise of the options, it is broadly classified into two

- a) **American Options** This type of options contract can be exercised at any time during the life of the contract (i.e.,) the buyer of American options can exercise his right whenever he feels favorable and that he need not wait till maturity/expiry of the contract.
- b) **European Options** This is the options contracts that can be exercised only upon maturity/expiration of the contract. The commodity options traded in India are of this type.

### Example

Mr. X, an investor of castor seed who expects a price rise in the near future buys an options contract on 1<sup>st</sup> December 2018 at Rs. 12,000 that expires on last Wednesday of January 2019. During the 1<sup>st</sup> week of January, the prices moved to Rs. 12,200 which is as expected and the options will be favorable for the buyer.

- If it is an American option, the buyer can execute the contract during the 1<sup>st</sup> week of January thereby getting a profit of Rs. 200, whereas,

- If it is a European option, the buyer cannot execute it during the 1<sup>st</sup> week of January instead has to wait till the last Wednesday of January to execute the contract but by this time the prices may change unfavorable for the buyer.

### Options Moneyness

Options Moneyness is the position of options holder in different market price conditions in relation to the options strike price. The options Moneyness can be broadly classified as three types such as

- a) At the Money (ATM)
- b) In the Money (ITM)
- c) Out of the Money (OTM)
- d) Near the Money (NTM)

#### a) At the Money (ATM)

In this type, the strike price of options will be equal to the spot price or market price of the underlying commodity or financial asset in both call options and put options. This is a no profit no loss situation. For instance, the strike price of options is Rs.3,300 and the spot price of the underlying commodity is also Rs.3,300. Then the option is said to be at the money.

#### b) In the Money (ITM)

In this type, the market condition will be a favorable one for the options buyer (i.e.,) for call options, the strike price will be lower than the market price and for put options, the strike price will be higher than the market price. Usually, in this Moneyness condition, the options holder will execute the contract. For instance, the strike price of options is Rs.3,300 and the spot price of the underlying commodity is Rs.3,400. If the contract is a call option, then this is a favorable condition for the options holder and is referred to as in the money condition for the call options. Whereas, the spot price of the underlying commodity is Rs.3,200 then this is an in the money condition for put options holder.

#### c) Out of the Money (OTM)

In this type of Moneyness, the market condition will be unfavourable for the call options buyer, the strike price will be higher than the spot price or market price and for a put option, and the strike price will be lower than the market price. Usually, in this Moneyness condition, the options holder will not execute the contract. For instance, the strike price of options is Rs.3,300. The call options holder will have out of the money condition if the spot price of the underlying is Rs.3,200 and for a put options holder, the out of the money condition occurs when the spot price of the underlying asset is at Rs.3,400.

#### d) Near the Money (NTM)

In this type of Moneyness, the strike price of options and the spot/market price of the underlying commodity will be similar but not exactly equal. For instance, the strike price of options is Rs.3,300 and the spot price is Rs. 3,299 or Rs.3301. The prices are not equal but almost similar to the difference is Re.1. Then the option is said to be near the money.

**Table 5.1 Summarized Moneyness Position of Options**

MARKET CONDITION	CALL OPTIONS	PUT OPTIONS
Strike Price = Market Price	Atthemoney	Atthemoney
Strike Price ~ Market Price	Nearthemoney	Nearthemoney
Strike Price < Market Price	Inthemoney	Out of the money
Strike Price > Market Price	Out of the money	Inthemoney

**Trading in Commodity Options**

The trading in commodity options starts with a trader entering an options contract through a registered broker by quoting his strike price. If the trader is an options holder, he has to pay the prescribed premium through his broker to the Exchange clearinghouse which in turn pays to the options writer. If the trader is an options writer who is obliged to execute the contract, receives the premium along with maintaining margins similar to the futures contract, thereby providing a guarantee to the options holder. Being a European style options contract, Indian commodity options can be exercised only on expiry. If the market condition is unfavourable for the options holder, he will allow the options unexercised where the options holder will incur a limited loss up to the options premium paid and the options writer will get back his margin money along with the options premium which is his limited gain. If the market condition is favourable for the options holder, he has two ways; one is exercising the options contract upon expiry or by offsetting the options contract before expiry known as liquidating the options.

**1) Exercising the Options**

As the Indian commodity option is of European style, the options contract can be exercised only on the expiry day. The options holder will exercise the options contract only if the market price movement is favourable for them. By exercising the options, the options holder will acquire either a long position (Call Options) or a short position (Put Options) of the underlying commodity futures contract. Once, the options is exercised and a futures position is obtained, all rest trading procedures including the payment and maintenance of margin remain the same as that of futures. There on, the profit and loss will also continue as per the commodity futures.

**Example**

A trader willing to buy Guarseed buys a call option with strike price of Rs. 3,500 per ton, by paying a Premium of Rs. 50 per ton and Commission and Transaction charges of Rs. 2 per ton. If the underlying commodity futures price rises to Rs. 3,700 per ton, the options holder will exercise his right and acquires a long futures position in Guar Seed. By doing so, the trader gets a gain of Rs.148 per ton ( $3,500+50+2 = 3,552 - 3,700$ ). Now the fixed up futures price of the trader remains at Rs.3,500. Thus, any further rise in price will be the trader's gain and any decrease in price will be his loss. The futures price being favourable at the time of exercising the options may not remain favourable while exercising the futures. Thus, only a very small percentage of options trader will go for exercising the contract.

**2) Liquidating the Options**

Liquidating the options is another way chosen by the trader to make use of options but to avoid further futures position. In liquidating an option, the options holder will take the opposite options position at the same strike price quoted previously. The call options holder

who has taken a long options position by paying a premium will take a short options position by receiving the premium for the same strike price. Due to the time value factors, the options premium varies between the options buy time and liquidating the options time. The difference between the premium paid on buying options and premium received on liquidating the options after adjusting the commissions and other transactional costs contributes to the net profit or loss for the options trader. As the options contract is a wasting asset, there is no guarantee that a trader will be able to find an active market when he decides to liquidate the options. Thus, liquidating an option becomes doubtful when it has less time to expiry and moved to deep outofthemoney.

### Example

A trader of Guarseed who anticipated a rise in Guarseed price bought a call option with a strike price of Rs.3,500 per ton by paying a premium of Rs.50 per ton and commission and transaction charges of Rs.2 per ton. After one month, the futures price of Guarseed has risen as anticipated which is now trading at Rs.3,800 per ton. Instead of exercising the options the trader goes for liquidating the options by writing the call options at the same strike price of Rs.3,500 per ton with the premium commanded now is Rs.70 per ton and the commission and transaction charges being at Rs.2 per ton. The net profit or loss incurred by the trader on liquidating the options will be equal to the difference between the cost incurred on buying the options and premium earned on writing the options (i.e.,)

Net Profit/Loss = [Premium paid + Commission and Transactional cost] [Premium received  
Commission and Transactional cost]

Net Profit/Loss = [50 + 2] [70 2] = 52 68 = Rs. 16 per ton.

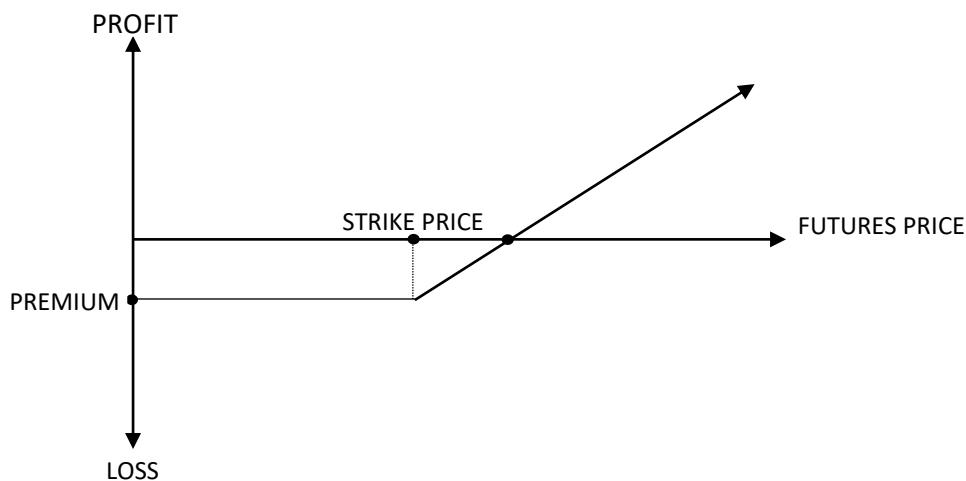
### Payoff of Options

Payoff means the profit and loss positions achieved by executing a contract. The payoff of options are in four conditions, such as

1. Buy Call Options
2. Write Call Options
3. Buy Put Options
4. Write Put Options

#### 1. Buy Call Options

Call options is an options to buy and buying call options means to have a long position of call options (or) being an options holder of a call option. An investor who fears of the bullish market (i.e.,) increase in market price hedges his risk with derivatives by fixing up a price now. In a futures contract the investor has been paying various margins which will Chapter much of his fund and in case of adverse market condition, will lead to a heavy loss. The call options will be a better option for the investor as the premium of options will be much lower than the futures margin and that the options holder has a right to execute his contract at his discretion. The call options holder will execute the options contract of the market price goes higher beyond the strike price plus premium where he will incur profit and if the market price goes below the strike price, the options holder will not execute the options and will incur of loss only to the extent of options premium. Thus, the payoff of call options will be



**Figure 5.1 Payoff of Buy Call Options**

### Example

An investor is in need of 10MT of Guarseed after two months. The guarseed market seems to be bullish and the investor is in short of fund to hedge with futures. So, he buys a call option with a strike price of Rs.3,350 per ton and pays a premium of Rs.50.

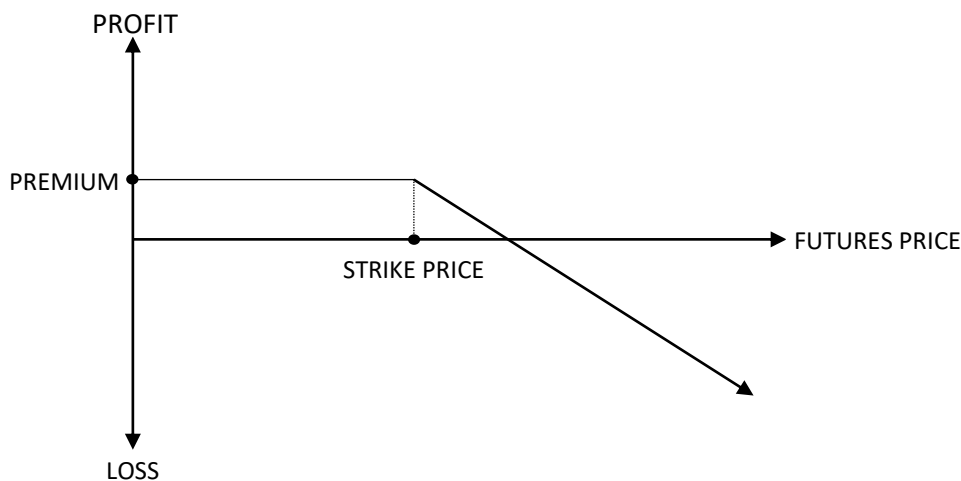
- (i). If the market price goes above Rs.3,350, the investor or call options holder will gain by executing the contract. He starts incurring gain after Rs. 3,400 which equals to the total cost of commodity price plus premium paid ( $3,350 + 50 = 3,400$ )
- (ii). If the market price goes below Rs.3,350, the call options holder will not execute the contract instead he buys at a lower price in the physical market. Thus, he loses only to the limit of premium paid (i.e.,) Rs. 50.

Thus, in a call option contract, the options holder will have limited loss and unlimited gain.

## 2. Write Call Options

Writing a call option means taking a short position in call options and the investor taking it is known as options writer. The options writer of call options receives a premium for the right given by him to the options holder which is a constant gain for the options writer. The options holder will exercise the call options only when the market prices rise above the strike price. As the options writer is to oblige the contract at options holders' discretion, the call options writer will loss when market prices rise. When market price falls below the strike price, the call options holder will not exercise the contract and the options writer will earn an amount equal to the premium. Thus, in the call options, the options writer will have a limited gain and unlimited loss. The payoff of writing call options will be





**Figure 5.2 Payoff of Write Call Options**

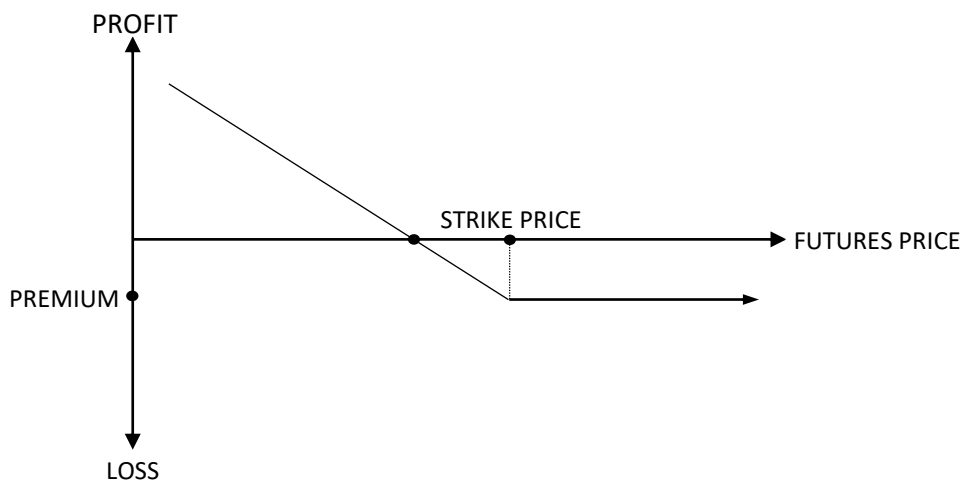
**Example**

A dealer of Guarseed is expecting a price rise but not more than Rs.3,400. Instead of futures, he opts to write a call option to get an extra gain of the premium of Rs.50.

- (i). When the market price goes below Rs.3,400, the options holder will not exercise the contract. Thus, the call options writer gains Rs.50 on options.
- (ii). When the market price goes above Rs.3,400 the options holder will exercise the contract. Here also the options writer will earn a premium but is obliged to sell the commodity at Rs.3,400 thereby incurring loss after the limit of the premium (i.e.,) Rs. 3,450 (3400 + 50)

**3. Buy Put Options**

Put options is an options to sell the underlying and buying put options means taking a long position of put options. The investors who fear of the bearish market (i.e.,) decrease in market price hedges his risk with put options. As the options contract is on futures, put options holder on exercise will get a short position on futures. An outright short position of futures will lock in huge money as margin and in case of adverse market condition will incur huge loss. Thus, to safeguard against the adverse effect, investors prefer buying a put option. The put options will benefit its holder when the market price falls below the strike price. If the market price goes above the strike price the options holder will not exercise his right. Thus, the payoff of put options will be as in figure5.3.



**Figure 5.3 Payoff of Buy Put Options**

**Example**

A farmer has sown Guar seed which will be ready for harvest after 3 months. The farmer fears for the price fall during harvest season and wishes to hedge his price risk. On fearing for the margin money and outright obligation of the futures contract, he opts for the options contract. As he has to sell his produce he buys Put options with a strike price of Rs. 3,500 per ton and pays a premium of Rs. 50 per ton.

- (i). If the market price goes below Rs. 3,500, the farmer (i.e.,) put options holder will benefit by executing the options contract. He will earn a profit when the market price falls below the cumulative price of strike price less premium (i.e.,) Rs. 3,450 ( $3,500 - 50 = 3,450$ ).

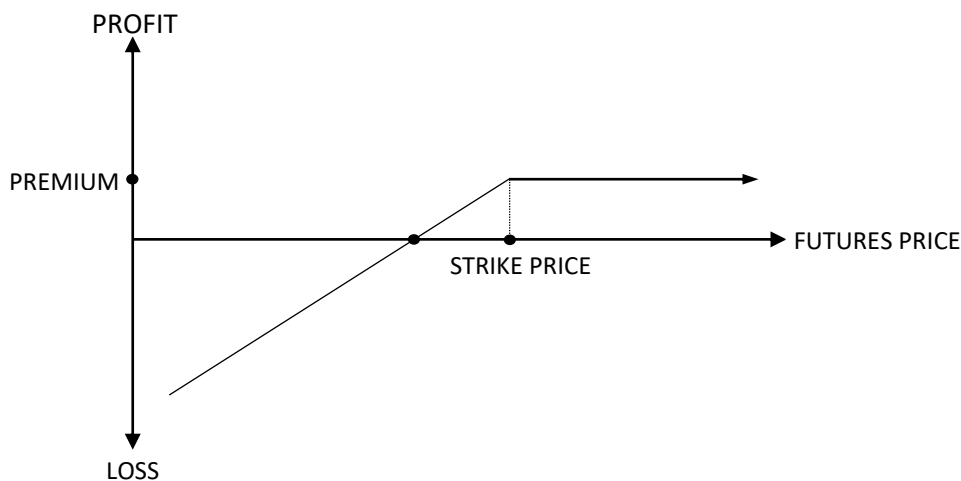
**Note** Put options is a contract to sell, hence, the farmer sells Guar seed and receives Rs. 3,500 but for his right he has to pay the premium of Rs. 50.

- (ii). If the market price goes above Rs. 3,500, the farmer can earn by selling his produce in the spot market, therefore, he will not execute the put options. At this case, he would incur a loss up to the premium paid.

Thus, for a put options holder, the loss is limited until the premium and gain is unlimited.

**4. Write put Options**

Writing a put option means taking a short position in the put options contract (i.e.,) long position in futures. Similar to a call options writer, put options writer will also receive a premium for the right given by him. The put options holder will execute his right only when the market price falls below the strike price which is to be obliged by the put options writer. Thus, the put option writer will also has an unlimited loss and limited gain. The payoff of writing put options being



**Figure 5.4 Payoff of Write Put Options**

**Example**

A dealer of Guar seed is expecting a price rise more than Rs. 3,500 and a fall not less than Rs. 3,500. Instead of taking a long position of futures, he opts to write a put option so as to earn additional income from premium. He gets a premium of Rs. 50 upon writing the put options at Rs. 3,500.

- (i). When the market price goes below Rs. 3,500, the options holder will execute the contract. Thus, the put options writer will incur a loss when the market price falls below the limit of Rs. 3,450 (3,500 - 50).
- (ii). When the market price goes above Rs. 3,500, the options holder will not execute the contract. Thereby, the put options writer will earn a limited amount of Rs. 50, the premium on options.

**Table 5.2 Summarized Information on Buying and Selling the Options**

	<b>Call</b>	<b>Put</b>
<b>Buy</b>	<ul style="list-style-type: none"> <li>• Right to Buy</li> <li>• Pays Premium</li> <li>• Bullish Market</li> <li>• Limited loss</li> <li>• Unlimited gain</li> </ul>	<ul style="list-style-type: none"> <li>• Right to Sell</li> <li>• Pays Premium</li> <li>• Bearish Market</li> <li>• Limited loss</li> <li>• Unlimited gain</li> </ul>
<b>Sell</b>	<ul style="list-style-type: none"> <li>• Obligation to Sell</li> <li>• Receives Premium</li> <li>• Bearish Market</li> <li>• Limited gain</li> <li>• Unlimited loss</li> </ul>	<ul style="list-style-type: none"> <li>• Obligation to Buy</li> <li>• Receives Premium</li> <li>• Bullish Market</li> <li>• Limited gain</li> <li>• Unlimited loss</li> </ul>

## Value of Options

The premium of the option is considered as the cost of the options or as the value of options. In other words, the premium is the amount for which the option is worthwhile. This options premium constitutes of two components such as

- 1) The Intrinsic value
- 2) The Time values

### 1) Intrinsic Value

The Intrinsic value of the options premium is the money realized on exercising the options at its strike price. It is also known as the monetary value of the options. Thus, during price rise, the call options will have intrinsic value but, that of put options will be zero as during price rise the put options will not be exercised. In the case of price fall, the put options will have an intrinsic value and that of the call options will be zero. The options will have intrinsic value only when it is in inthefmoney condition. The intrinsic value of options is said to be the amount by which an option is inthefmoney. The intrinsic value of Options premium can be calculated as

Intrinsic value of Call options = Spot Price of Underlying Commodity Strike Price of Options

Intrinsic value of Put options = Strike Price of Options Spot Price of Underlying Commodity

### 2) Time Value

The time value of options is based on its time to expiry and it is computed by subtracting the intrinsic value of options from the cost of the options (i.e.,) Options premium. When the options is in outofthefmoney condition, there will be no intrinsic value and so the time value of options will be equal to the Premium or vice versa.

Time value of Call Options = Premium Intrinsic value of Call Options

Time value of Put Options = Premium Intrinsic value of Put Options

Options is another type of derivative instrument which is exchange traded one. Options is a contract between two parties (Options holder and Options writer) where its buyer (Options holder) has the right but not the obligation to buy (Call Options) or sell (Put Options) the underlying asset at an agreed price (Strike price) on an agreed future date (Expiry date). The Options holder has to pay an amount known as the Premium to the Options writer for the right given to the former by the latter. The Options premium consists of two components such as the intrinsic value (the amount realized on exercising the Options) and the time value (the amount the options holder wishes to pay for buying the Options). The market price keeps changing thus the profit/loss position also keeps changing which is termed as Options Moneyness that are broadly grouped into four categories such as, InthefMoney, AtthefMoney, OutofthefMoney, and NearthefMoney. The Options will be beneficial for the Options holder when it is in In the Money condition. In India, the underlying asset of the options is a commodity futures contract and so upon exercising the Options contract, the Options holder will get a long/short position on Commodity Futures contract. The Call Options buyer and Put Options buyer will pay a premium which is their limited loss but they earn an unlimited profit when the futures price rises in case of Call Options and when the futures price falls in case of Put Options. In a similar manner, the Call Options and Put Options seller will earn a limited profit up to the limit of

the premium received and suffers an unlimited loss when there is a rise in futures price in case of Call Options and when there is a fall in futures price in case of Put Options.

## 5.2 Pricing of Commodity Options

The previous sections covered the basics of the options contract such as its types, terminologies, and payoffs. The next important thing to know about the options contract is how it is priced. Pricing a futures contract means fixing the futures price but pricing an options contract is not determining the futures price as it is already available. Options pricing is the value for which the options can be bought or sold (i.e.,) the Options premium. The commodity exchanges follow a predetermined model for pricing options upon which the options premium will be initially calculated and fixed for various strike prices. The option premium given by the commodity exchanges changes based on the trading in options. Thus, knowing about the calculation of options price is important so as to trade with options. This is framed to elaborate on the pricing of options by covering the concepts such as

- Determinants of Options price
- Black76 Options on Futures Pricing Model
- Options Greeks

### Determinants of Options Price

Options value is the premium paid for obtaining the right to buy or sell. As discussed in the previous , the options premium consists of two components namely the intrinsic value (amount to be realized by exercising the options) and the time value (the amount the options buyer is willing to pay for the options). The options premium and its components are mainly influenced by five major factors such as

1. Underlying asset price
2. Strike price
3. Time until expiry
4. Volatility of the underlying asset
5. Riskfree interest rate

#### 1. Underlying Asset Price

In Indian commodity options, the underlying asset is a futures contract. The options contract's premium is mainly depends on the futures price thus the favourable or unfavourable position of an options buyer is determined by the changes in the futures price. The options buyer's decision on exercising or not exercising the options depends upon the price of the underlying commodity futures. The price change of the commodity futures has an opposite effect on the call and put options (i.e.,) if there is a rise in the commodity futures price, the call options value will increase as the call options condition will be inthefmoney, and the put options value will decrease as the put options condition will be outofthefmoney. Similarly, the decrease in commodity futures price will decrease the call options value and increase the put options value.

#### 2. Strike Price

The strike price which is the price at which the underlying asset is bought or sold in a Call or Put Options respectively is another important determinant of options premium as it determines the intrinsic value of the options premium. The option's premium will increase if

the options contract moves to inthefmoney condition and the options premium will decrease if it moves to outofthefmoney condition.

### 3. Time Until Expiry

The time to expiry affects the time value component of the options premium which generally decreases as the expiry approaches. Thus, the options premium will be higher when expiry is far and decreases as expiry approaches which become zero on expiry. The effect of this can be noted clearly when the options (call and put) lies in atthefmoney condition.

### 4. Volatility of the Underlying Asset

Volatility is the measure of risk or uncertainty of the futures price that has a major impact on the time value component of an options premium and it is a most difficult factor to quantify. Higher the volatility of underlying commodity futures higher will be the options premium for both put and call options that can be highly notable when the options are in atthefmoney condition.

### 5. Risk free Interest Rate

Riskfree interest rate refers to the earnings that can be earned by investing in a safe investment avenue that contributes to the cost of carry of futures price. The riskfree interest rate has a very less impact on options premium than compared to other determinants discussed above.

## Black76 Options on Futures Pricing Model

The commodity options in India is priced using the widely used Black76 model developed by Fischer Black in 1976 which is used to price an option on futures, bond options, interest rate cap, and floor and swaptions. It is a variant of the BlackScholes options pricing model (1973) used to price options on spot prices. The formula of Black76 in pricing options on futures is;

$$\text{Call Options} = e^{-rt} [F \times N(d_1) - K \times N(d_2)]$$

$$\text{Put Options} = e^{-rt} [K \times N(-d_2) - F \times N(-d_1)]$$

Where,

$$d_1 = \frac{\ln\left(\frac{F}{K}\right) + \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}} \text{ and}$$

$$d_2 = \frac{\ln\left(\frac{F}{K}\right) - \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}} \text{ or } d_1 - \sigma\sqrt{t}$$

**F** = Current futures price of underlying commodity futures

**K** = Strike price of the Options

**t** = Time to expiry expressed in years

**r** = Riskfree interest rate

**σ** = Volatility of the underlying commodity futures contract

**N(.)** = Standard normal cumulative distribution function

The model applies with the assumptions that

- The options can only be exercised on expiry (i.e.,) options must be of European style.
- The underlying asset will not generate any dividend.

- There are no margins, transaction costs and taxes.
- The riskfree interest rate and volatility of the underlying asset are constant.
- The price movement of the underlying asset must follow a lognormal distribution

### Example 5.2.1

A trader who deals with Guar seed wishes to mitigate his risk using Guar Seed Options. As he is in need of Guar seed in the month of April, he checks out the April futures and April options contracts. If the April futures contract is trading at Rs. 11,580 per ton, the strike price to be fixed by the trader is Rs. 12,000 per ton, the riskfree interest rate is 10% p.a. and volatility of Guar seed is 8% p.a. compute the Options value based on the Black76 model.

### Solution

As per the given detail,  $F = 11,580$ ;  $K = 12,000$ ;  $r = 0.10$ ;  $\sigma = 0.08$ ;  $t = 3/12$  or  $0.25$ .

$$\text{Call Options} = e^{-rt}[F \times N(d_1) - K \times N(d_2)]$$

$$\text{Put Options} = e^{-rt}[K \times N(-d_2) - F \times N(-d_1)]$$

$$d_1 = \frac{\ln\left(\frac{F}{K}\right) + \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

$$d_1 = \frac{\ln\left(\frac{11580}{12000}\right) + \left(\frac{0.08^2}{2}\right)0.25}{0.08\sqrt{0.25}}$$

$$d_1 = \frac{\ln(0.965) + (0.0032)0.25}{0.04}$$

$$d_1 = \frac{-0.0356 + 0.0008}{0.04}$$

$$d_1 = -0.87$$

$$d_2 = \frac{\ln\left(\frac{F}{K}\right) - \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}} \text{ or } d_1 - \sigma\sqrt{t}$$

$$d_2 = d_1 - \sigma\sqrt{t}$$

$$d_2 = -0.87 - [0.08 \times \sqrt{0.25}]$$

$$d_2 = -0.87 - 0.04$$

$$d_2 = -0.91$$

$$\text{Call Options} = e^{-rt}[F \times N(d_1) - K \times N(d_2)]$$

$$\text{Call Options} = e^{-(0.10 \times 0.25)}[(11580 \times N(-0.87)) - (12000 \times N(-0.91))]$$

$$\text{Call Options} = e^{-0.025}[(11580 \times 0.19215) - (12000 \times 0.181411)]$$

$$\text{Call Options} = 0.9753[2225.097 - 2176.932]$$

$$\text{Call Options} = 0.9753[48.165]$$

$$\text{Call Options} = 46.98$$

$$\text{Put Options} = e^{-rt}[K \times N(-d_2) - F \times N(-d_1)]$$

$$\text{Put Options} = e^{-(0.10 \times 0.25)}[(12000 \times N(-(-0.91))) - (11580 \times N(-(-0.87)))]$$

$$\text{Put Options} = e^{-0.025}[(12000 \times 0.818589) - (11580 \times 0.80785)]$$

$$\text{Put Options} = 0.9753[9823.068 - 9354.903]$$

$$\text{Put Options} = 0.9753[468.165]$$

$$\text{Put Options} = 456.60$$

Thus, for Strike price Rs. 12,000; Call option value is Rs. 46.98; Put option value is Rs. 456.60.

### Options Greeks

Options Greeks are functions that show the sensitivity of the value of options to changes in market conditions. The Greeks are useful in assessing and comparing various options positions, which is used by traders in decision making. The Options Greeks capture the effect of different options influential variables on the value of an options contract. The various Options Greeks are

1. Delta
2. Gamma
3. Vega
4. Theta
5. Rho

#### 1. Delta ( $\Delta$ )

Delta measures the rate of change in the price of an options contract with respect to one change in the underlying asset price (i.e.,) futures price. In other words, delta measures the sensitivity of theoretical options value to a change in underlying asset value. The price of the underlying is considered as an important variable in determining the options value and so the Options Greek Delta is also considered important that acts as a parameter in hedging decision. Delta is also termed as Hedge ratio as it guides how many options are to be taken to hedge the price risk of the underlying asset. Delta is denoted by  $\Delta$  and is expressed as

$$\text{Delta} = \frac{\text{Change in Options Premium}}{\text{Change in Underlying futures price}}$$

For example, if the underlying futures price rises by Re.1 and the Call options value raises by 50 paise, then the delta of call options is said to be 0.50. (i.e.,) if the futures price changes by Re.1, the options value will change by 50 paise.

The delta value ranges from +1 to 0 (100% to 0%) for Call Options and 0 to -1 (0% to -100%) for Put Options. At the time of expiry, the delta will be either  $\pm 100\%$  if the options contract is in inthefmoney condition and 0% if the option is in outofthefmoney condition. The formula for determining Delta for call options and put options are

$$\text{Call Options Delta} = e^{-rt}N(d_1)$$



$$\text{Put Options Delta} = e^{-rt}[N(d_1) - 1]$$

Where,

$$d_1 = \frac{\ln\left(\frac{F}{K}\right) + \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

**F** = Current futures price of underlying commodity futures

**K** = Strike price of the Options

**t** = Time to expiry expressed in years

**r** = Riskfree interest rate

**σ** = Volatility of the underlying commodity futures contract

**N(.)** = Standard normal cumulative distribution function

### Example

Based on the Example 5.2.1, Calculate the Delta value for Options.

### Solution

As per Example 5.2.1,  $r = 0.10$ ;  $t = 0.25$ ;  $d_1 = 0.87$

$$\text{Call Options Delta} = e^{-rt}N(d_1)$$

$$\text{Call Options Delta} = e^{-(0.10 \times 0.25)}N(-0.87)$$

$$\text{Call Options Delta} = e^{-0.025} \times 0.19215$$

$$\text{Call Options Delta} = 0.9753 \times 0.19215$$

$$\text{Call Options Delta} = 0.1874$$

$$\text{Put Options Delta} = e^{-rt}[N(d_1) - 1]$$

$$\text{Put Options Delta} = e^{-(0.10 \times 0.25)}[N(-0.87) - 1]$$

$$\text{Put Options Delta} = e^{-0.025} \times [0.19215 - 1]$$

$$\text{Put Options Delta} = 0.9753 \times -0.80785$$

$$\text{Put Options Delta} = -0.7878$$

Thus, the Delta of Call Options is 0.19 which explains that Re. 1 change in underlying Commodity Futures leads to 19 Paise change in call options value. Similarly, the Delta of Put Options is 0.79 that explains that Re.1 change in underlying Commodity Futures leads to 79 Paise change in the put options value.

## 2. Gamma (Γ)

Gamma measures the rate of change in Options Delta with respect to one change in the underlying asset price (i.e.,) futures price. In other words, gamma measures the sensitivity of options delta to a change in underlying asset value. Gamma is denoted by  $\Gamma$  and is expressed as;

$$\text{Gamma} = \frac{\text{Change in Delta}}{\text{Change in Underlying futures price}}$$

For example, if the underlying futures price rises by Re.1 and its delta rises by 0.10, then Gamma is said to be 0.10 (or) 10%.

Gamma helps a trader to predict how the options delta will move with respect to the movement of asset price which is helpful in providing information on directional exposure of an options contract. The Gamma will be highest when the options contract is in atthemoney condition. The Gamma will increase when the option moves form inthemoney condition to atthemoney condition and the Gamma will decrease whenit moves from atthemoney condition to outofthemoney condition. Gamma a very helpful risk management tool for large portfolios as it tends to reflect the speed of an options contract.The formula for determining Gamma is same for both Call options and Put options as it measures the change of options delta and that is

$$\text{Call Options and Put Options Gamma} = e^{-rt} \times \frac{N'(d_1)}{F\sigma\sqrt{t}}$$

Where,

$$N'(d_1) = \frac{1}{\sqrt{2\pi}} e^{-d_1^2/2}$$

$$d_1 = \frac{\ln\left(\frac{F}{K}\right) + \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

**F** = Current futures price of underlying commodity futures

**K** = Strike price of the Options

**t** = Time to expiry expressed in years

**r** = Riskfree interest rate

**σ** = Volatility of the underlying commodity futures contract

**N(.)** = Standard normal cumulative distribution function

### Example

Based on the Example 5.2.1, Calculate the Gamma value for Options.

### Solution

As per Example 5.2.1,  $r = 0.10$ ;  $t = 0.25$ ;  $d_1 = 0.87$ ;  $\sigma = 0.08$

$$\text{Call Options and Put Options Gamma} = e^{-rt} \times \frac{N'(d_1)}{F\sigma\sqrt{t}}$$

$$N'(d_1) = \frac{1}{\sqrt{2\pi}} e^{-d_1^2/2}$$

$$N'(d_1) = \frac{1}{\sqrt{2 \times \frac{22}{7}}} e^{-(-0.87)^2/2}$$

$$N'(d_1) = \frac{1}{2.5071} e^{-0.7569/2}$$

$$N'(d_1) = 0.3989 \times e^{-0.37845}$$

$$N'(d_1) = 0.3989 \times 0.6849$$

$$N'(d_1) = 0.2732$$

$$\text{Call Options and Put Options Gamma} = e^{-rt} \times \frac{N'(d_1)}{F\sigma\sqrt{t}}$$

$$\text{Gamma} = e^{-(0.10 \times 0.25)} \times \frac{0.2732}{11580 \times 0.08 \times \sqrt{0.25}}$$

$$\text{Gamma} = e^{-0.025} \times \frac{0.2732}{463.2}$$

$$\text{Gamma} = 0.9753 \times 0.0005898$$

$$\text{Gamma} = 0.0005752$$

Thus, the Gamma value for options is 0.0006 which explains that a 1% change in underlying commodity futures price leads to a 0.06% change in Options Delta.

### 3. Theta ( $\Theta$ )

Theta measures the rate of change in the value of options with respect to change in time to options expiry (i.e.,) the sensitivity of theoretical value of options to decrease in time to expiry of options. Options generally lose its value as the time declines and thus is referred to as a wasting asset. The Theta will be lower when time to expiry is far which increases when the options contract approaches expiry. The Theta helps the options trader in determining whether the options would be beneficial for the cost paid for it. The Theta is denoted by  $\Theta$  and is expressed as

$$\text{Theta} = \frac{\text{Change in Options Premium}}{\text{Change in Time to expiry}}$$

The Theta is determined by the formula;

$$\text{Call Options Theta} = -\frac{Fe^{-rt}N'(d_1)\sigma}{2\sqrt{t}} + rFe^{-rt}N(d_1) - rKe^{-rt}N(d_2)$$

$$\text{Put Options Theta} = -\frac{Fe^{-rt}N'(d_1)\sigma}{2\sqrt{t}} - rFe^{-rt}N(-d_1) + rKe^{-rt}N(-d_2)$$

Where,

$$N'(d_1) = \frac{1}{\sqrt{2\pi}} e^{-d_1^2/2}$$

$$d_1 = \frac{\ln\left(\frac{F}{K}\right) + \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

$$d_2 = \frac{\ln\left(\frac{F}{K}\right) - \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}} \text{ or } d_1 - \sigma\sqrt{t}$$

**F** = Current futures price of underlying commodity futures

**K** = Strike price of the Options

**t** = Time to expiry expressed in years  
**r** = Riskfree interest rate  
**σ** = Volatility of the underlying commodity futures contract  
**N(.)** = Standard normal cumulative distribution function

### Example

Based on the Example 5.2.1, Calculate the Theta value for Options.

### Solution

As per Example 5.2.1 and Example 5.2.3,  $F = 11,580$ ;  $K = 12,000$ ;  $r = 0.10$ ;  $t = 0.25$ ;  $\sigma = 0.08$ ;  $d_1 = 0.87$  and  $N'(d_1) = 0.2732$

$$\text{Call Options Theta} = -\frac{Fe^{-rt}N'(d_1)\sigma}{2\sqrt{t}} + rFe^{-rt}N(d_1) - rKe^{-rt}N(d_2)$$

$$\text{Call Options Theta} = -\frac{11580 \times e^{-(0.10 \times 0.25)} \times 0.2732 \times 0.08}{2\sqrt{0.25}} + [0.10 \times 11580 \times e^{-(0.10 \times 0.25)} \times 0.19215] - [0.10 \times 12000 \times e^{-(0.10 \times 0.25)} \times 0.181411]$$

$$\text{Call Options Theta} = -\frac{11580 \times 0.9753 \times 0.2732 \times 0.08}{1} + [0.10 \times 11580 \times 0.9753 \times 0.19215] - [0.10 \times 12000 \times 0.9753 \times 0.181411]$$

$$\text{Call Options Theta} = -246.8411 + 217.0137 - 212.3162$$

$$\text{Call Options Theta} = -242.1436$$

$$\text{Put Options Theta} = -\frac{Fe^{-rt}N'(d_1)\sigma}{2\sqrt{t}} - rFe^{-rt}N(-d_1) + rKe^{-rt}N(-d_2)$$

$$\text{Put Options Theta}$$

$$\begin{aligned}
 &= -\frac{11580 \times e^{-(0.10 \times 0.25)} \times 0.2732 \times 0.08}{2\sqrt{0.25}} \\
 &\quad - [0.10 \times 11580 \times e^{-(0.10 \times 0.25)} \times 0.80785] \\
 &\quad + [0.10 \times 12000 \times e^{-(0.10 \times 0.25)} \times 0.818589]
 \end{aligned}$$

$$\text{Put Options Theta}$$

$$\begin{aligned}
 &= -\frac{11580 \times 0.9753 \times 0.2732 \times 0.08}{1} - [0.10 \times 11580 \times 0.9753 \times 0.80785] \\
 &\quad + [0.10 \times 12000 \times 0.9753 \times 0.818589]
 \end{aligned}$$

$$\text{Put Options Theta} = -246.8411 - 912.3837 + 958.0438$$

$$\text{Put Options Theta} = -201.181$$

Thus, the Theta value for call options is 242.1436 and for put options is 201.181 which means that 1 day decrease in time to expiry will lead to Rs. 242.14 decrease in call options value and Rs. 201.18 decrease in put options value.

#### 4. VEGA (v)

Vega measures the rate of change in the value of options with respect to one change in implied volatility (which is a forward estimated volatility that equals the theoretical options price to that

of the market price). Vega, in other words, indicates the sensitivity of theoretical options value to a change in implied volatility. As volatility is an important parameter in determining the options price, Vega helps the options trader in determining which options would yield the best rewards. Thus, it is highly helpful in decision making while an asset is highly volatile. The Vega will be greater during atthemoney condition and when the time to expiry is not too far or not too short. The Vega will be lesser when the options contract is deepinthemoney or outofthemoney and it's time to expiry is too short or too far. The Vega is denoted by v and is expressed as

$$Vega = \frac{\text{Change in Options Premium}}{\text{Change in Implied volatility}}$$

The Vega is determined by the same formula for both call options and put options as;

$$\text{Call Options and Put Options Vega} = Fe^{-rt}N'(d_1)\sqrt{t}$$

Where,

$$N'(d_1) = \frac{1}{\sqrt{2\pi}}e^{-d_1^2/2}$$

$$d_1 = \frac{\ln\left(\frac{F}{K}\right) + \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

**F** = Current futures price of underlying commodity futures

**K** = Strike price of the Options

**t** = Time to expiry expressed in years

**r** = Riskfree interest rate

**σ** = Volatility of the underlying commodity futures contract

**N(.)** = Standard normal cumulative distribution function

### Example

Based on the Example 5.2.1, Calculate the Vega value for Options.

### Solution

As per Example 5.2.1 and Example 5.2.3,  $r = 0.10$ ;  $t = 0.25$ ;  $d_1 = 0.87$  and  $N'(d_1) = 0.2732$

$$\text{Call Options and Put Options Vega} = Fe^{-rt}N'(d_1)\sqrt{t}$$

$$Vega = 11580 \times e^{-(0.10 \times 0.25)} \times 0.2732 \times \sqrt{0.25}$$

$$Vega = 11580 \times e^{-0.025} \times 0.2732 \times 0.5$$

$$Vega = 11580 \times 0.9753 \times 0.2732 \times 0.5$$

$$Vega = 1542.7568$$

Thus, the Vega value for call and put options is 1542.7568 which implies that 1% change in implied volatility will lead to Rs. 1,542.76 change in Options value.

## 5. Rho (P)

Rho measures the rate of change in options value with respect to one change in riskfree interest rate (i.e.,) sensitivity of theoretical options value to changes in interest rate. As interest rate is demoted in percentage, rho generally exhibits the amount of change in options value to one percentage change in interest rate. Rho is not considered much important compared to other Greeks as the impact of riskfree interest rate is least in pricing an options contract. Rho denoted by  $\rho$  and is expressed as;

$$Rho = \frac{\text{Change in Options Premium}}{\text{Change in Risk free interest rate}}$$

The formula for computing rho are

$$\text{Call Options Rho} = t[e^{-rt}[K \times N(d_2) - F \times N(d_1)]] \text{ (or) } t \times (\text{Call Options Value})$$

$$\text{Put Options Rho} = t[e^{-rt}[F \times N(-d_1) - K \times N(-d_2)]] \text{ (or) } t \times (\text{Put Options Value})$$

Where,

$$d_1 = \frac{\ln\left(\frac{F}{K}\right) + \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

$$d_2 = \frac{\ln\left(\frac{F}{K}\right) - \left(\frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}} \text{ or } d_1 - \sigma\sqrt{t}$$

**F** = Current futures price of underlying commodity futures

**K** = Strike price of the Options

**t** = Time to expiry expressed in years

**r** = Riskfree interest rate

**$\sigma$**  = Volatility of the underlying commodity futures contract

**N(.)** = Standard normal cumulative distribution function

### Example

Based on the Example 5.2.1, Calculate the Rho value for Options.

### Solution

As per Example 5.2.1,  $K = 12,000$ ;  $F = 11,580$ ;  $r = 0.10$ ;  $t = 0.25$ ;  $d_1 = 0.87$ ;  $d_2 = 0.91$

$$\text{Call Options Rho} = t[e^{-rt}[K \times N(d_2) - F \times N(d_1)]]$$

$$\text{Call Options Rho} = 0.25 [e^{-(0.10 \times 0.25)}[(12000 \times N(-0.91)) - (11580 \times N(-0.87))]]$$

$$\text{Call Options Rho} = 0.25 [e^{-0.025}[(12000 \times 0.181411) - (11580 \times 0.19215)]]$$

$$\text{Call Options Rho} = 0.25 [0.9753[2176.932 - 2225.097]]$$

$$\text{Call Options Rho} = 0.25 [0.9753 \times (-48.165)]$$

$$\text{Call Options Rho} = 0.25 \times (-46.975)$$

$$\text{Call Options Rho} = -11.744$$

(OR)

Call Options Rho = t x (Call Options Value)

Call Options Rho = 0.25 x (46.98)

Call Options Rho = 11.745

$$\text{Put Options Rho} = t[e^{-rt}[F \times N(-d_1) - K \times N(-d_2)]]$$

$$\text{Put Options Rho} = 0.25 [e^{-(0.10 \times 0.25)}[(11580 \times N(-(-0.87))) - (12000 \times N(-(-0.91)))]]$$

$$\text{Put Options Rho} = 0.25 [e^{-0.025}[(11580 \times 0.80785) - (12000 \times 0.818589)]]$$

$$\text{Put Options Rho} = 0.25 [0.9753[9354.903 - 9823.068]]$$

$$\text{Put Options Rho} = 0.25 [0.9753 \times (-468.165)]$$

$$\text{Put Options Rho} = 0.25 \times (-456.6013)$$

$$\text{Put Options Rho} = -114.15$$

(OR)

Put Options Rho = t x (Put Options Value)

Put Options Rho = 0.25 x (456.60)

Put Options Rho = 114.15

Thus, the Rho value for the Call and Put options are 11.745 and 114.15 respectively which means that 1% change in riskfree interest rate will reduce the Call and Put options value by Rs. 11.75 and Rs. 114.15 respectively.

The Options premium is the value of the Options contract which is mainly influenced by five factors such as; Underlying asset price, Strike price, Time until expiry, Volatility of the underlying asset and Riskfree interest rate. The premium amount is determined based on a widely accepted pricing model. The underlying asset of Indian commodity options contract is the commodity futures. The most common pricing of Options on futures is the Black76 model developed by Fischer Black in the year 1976. Apart from pricing an options contract, there is another term known as Options Greeks which refers to the sensitivity of options value to change in market conditions. The various Options Greeks are Delta, Gamma, Theta, Vega and Rho. Delta is a commonly used Options Greek that measures the change in options value to change in the underlying asset price. Gamma measures the change in Delta to change in the underlying asset price. Theta measures the change in options value to change in time to expiry. Vega measures the change in options value to change in volatility and Rho measures the change in options value to change in riskfree interest rate. The Options Greeks is a useful tool in decision making that evaluates and compares various options positions.

### To Do Activity

Each one selects one commodity options and calculate their price as per Black (1976) model. Now, compare them with market price and find out whether the commodity options are overpriced or underpriced. Also, extend by computing the Options Greeks and discuss them in class with reasoning.

## 5.3 Hedging Strategies Using Commodity Options

Options contract is another derivative instrument as futures helps in mitigating trader's risk. It has an edge over futures as it provides additional leverage for its holders to take advantage of the adverse market condition by providing a right than obligation. Similar to the futures, options are also used by various market participants for various purposes. To attain the desired benefit, traders will use different strategies. Knowing about some commonly used strategies gives an indepth idea about the application of options and this focuses on a briefing about strategies used by hedgers such as

- Hedging for buyer
  - Long Call
  - Short Put
  - Long Call and Short Put
- Hedging for seller
  - Long Put
  - Short Call
  - Long Put and Short Call
- Delta Hedging

### Options for Hedgers

Hedgers are persons who use options to mitigate their risk. In the Indian commodity market, the underlying asset of an options contract is a futures contract. The hedger can be a person/trader willing to buy the underlying commodity futures or sell the underlying commodity futures. A futures contract can be used directly for hedging a trader's risk but it holds both potential loss and potential gain. The Options contract overcomes this issue which allows its trader to mitigate his risk by allowing him to enjoy the potential gain, thereby resulting in an unlimited profit and limited risk condition for the Options holder. The Options holder/buyer pays a premium which is considered as the cost for enjoying the Options right. Though the hedgers' intention is the same they use different trading strategies depending upon their need, risktaking capacity and market condition. The hedgers can be broadly classified into two; one is the buyer of the commodity and another being the seller of the commodity. Few commonly used Options trading strategies for commodity buyers and sellers are as follows.

### Hedging for Buyers

A buyer is a trader who wants to take a long position in the commodity and generally fears for commodity price rise. He can use both futures and options to hedge his risk. If he uses futures, the buyer can just take a long futures position but when it comes to options, a buyer can do it in two ways,

- (i). Buy a Call Options contract



(ii). Sell a Put Options contract

- (i). **Buy a Call Options** contract Call Options is a contract to buy the underlying asset. Buying a Call Options gives a direct long position on the commodity futures which in turn gives a long position on commodity upon expiry.
- (ii). **Sell a Put Options contract** Put Options is a contract to sell the underlying asset. Selling a Put Options gives the trader an obligation to buy the underlying commodity futures that in turn gives a long position on the commodity upon expiry.

The Options strategies used by buyers to hedge their risk are

- 1) Long Call
- 2) Short Put
- 3) Long Call and Short Put

### 1) Long Call

Long Call strategy means buying the Call Options which gives a long hedge position of the underlying futures. This strategy is commonly used by buyers when the market condition is expected to be volatile and bullish. This strategy benefits the Options holder when he executes his right when the underlying futures price rises above the strike price. This provides flexibility in achieving upside insurance and downside potential profit. As the holder of Call Options, the trader has to pay the Options premium. Using this strategy the buyer can fix up a ceiling purchase price which can be computed by;

Ceiling Purchase/Buying price = Call Strike Price + Premium Paid  $\pm$  Basis of Local Mandi if any.

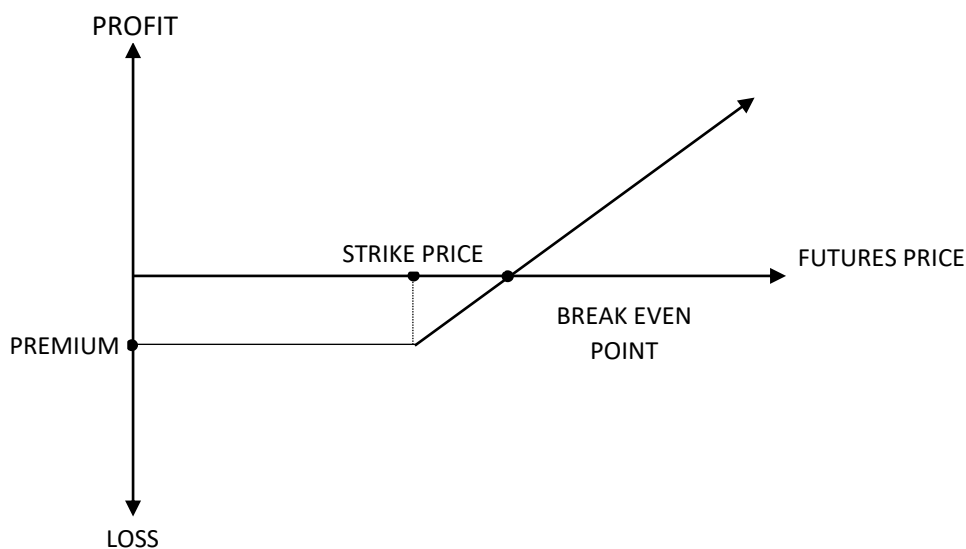


Figure 5.5 Pay Off of Long Call Strategy

#### Example

A buyer of Guarseed is in need of 10 Metric Tons of Guarseed after 3 months. He predicts the market to be bullish in the next 3 months and wants to hedge his price risk. The trader opts for Options so as to enjoy the advantage of downside potential profit. The Strike price and premium for

the call and put options are given below in Table 5.3.1. The 3 months Guar Seed futures is trading at Rs. 12,500 and the local mandi price has a constant basis of Rs. 100 with the futures (i.e.) if a Guar Seed futures contract is trading at Rs. 12,000, the local mandi price will be Rs. 11,900 (12,000 - 100 = 11,900).

**Table 5.3 Call and Put Options Premium**

Strike Price	Call Premium	Put Premium
12,000	500	450
12,100	490	460
12,200	480	470
12,300	470	480
12,400	460	490
12,500	450	500
12,600	440	510
12,700	430	520
12,800	420	530
12,900	410	540
13,000	400	550

**Solution**

As the 3 months futures contract is trading at Rs. 12,500 and keeping in view the bullish condition in the market the trader chooses an in-the-money contract with a strike price of Rs. 12,500 for which he pays a premium of Rs. 450. Thus, the Break Even Price will be Rs. 12,950 (Strike price Rs. 12,500 + Options Premium Rs. 450). If the futures price goes above the Break Even Price, the buyer will execute the Options contract and earn unlimited profit. If the futures price goes below the Break Even Price, the buyer will allow the Options contract to expire worthlessly and incur a limited loss upto the amount of Options premium paid. Let's see the various price conditions on expiry and the profit/loss position of the Options buyer.

**Table 5.4 Long Call Strategy**

Futures Price on 3 <sup>rd</sup> Month (a)	Basis Of Local Mandi (b)	Local Mandi Price (c) = (a) - (b)	Profit/Loss On Options (d)	Effective Purchase Price (e) = (c) ± (d)
12,300	100	12,200	( ) 450	12,650
12,400	100	12,300	( ) 450	12,750
12,500	100	12,400	( ) 450	12,850
12,600	100	12,500	( ) 350	12,850
12,700	100	12,600	( ) 250	12,850
12,800	100	12,700	( ) 150	12,850
12,900	100	12,800	( ) 50	12,850
13,000	100	12,900	50	12,850

**Note** Effective purchase price is calculated by adding Loss on Options and subtracting Gain on Options with Local Mandi Price.

**Ceiling Buying Price** = Call Strike Price + Options Premium Basis on Local Mandi

$$= 12,500 + 450 \times 100$$

$$= \text{Rs. } 12,850/$$

Whatever increase in market price may be, the buyer's purchase price will not exceed Rs. 12,850.

- **Exercise the Call Options** The Call Options holder will exercise his right when the market price increases above the strike price. Through the Long Call Options strategy, the Options buyer can fix up the ceiling buying price.
- **Expiry of Call Options** If price decreases below the strike price the buyer will let the Options to expire resulting in limited loss of Options premium paid.
- **Offsetting the Call Options** When a buyer doesn't want to take the futures position he goes for offsetting the Call Options position by writing the same amount of Call at the same strike price. The premium paid on long Call will be different from the premium received on Short Call. Thus, the net purchase price in offsetting condition can be calculated by;

Net Purchase price = Underlying Futures price at the time of commodity purchase  $\pm$  Basis of Localmandi at the time of Purchase + Premium paid on Long Call Premium received on Short Call.

## 2) Short Put

Another strategy for taking up a long position on a commodity by a buyer is by writing the put options. This strategy is commonly used by buyers when the market condition is expected to be stable and bullish. While writing a put options contract the trader becomes the options writer who is obliged to fulfill the contract on the demand of options holder for which he receives an options premium. Thus, the purchase price of the trader gets lower to the extent of options premium received by him. This strategy helps the buyer to fix a floor buying price.

Floor Buying Price = Put strike Price Premium received  $\pm$  Basis of Local Mandi if any.

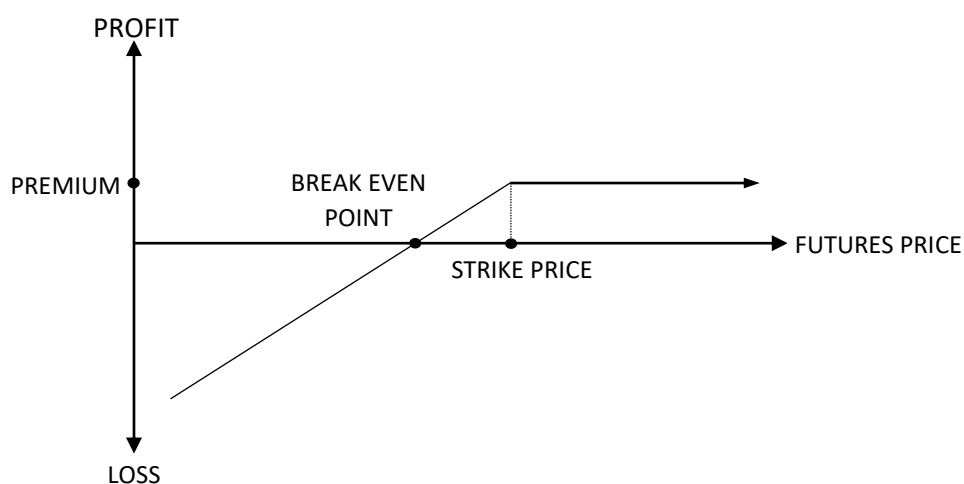


Figure 5.6 Payoff of Short Put Strategy

This strategy can be better understood with the following example.

### Example

Assume the same example of 5.3.1 but the market condition is relatively stable here and the trader expects the guarseed price to rise not more than Rs. 12,600 for which he writes a put options contract at Rs.12,600 and receive a premium of Rs.510.

$$\begin{aligned} \text{Break Even Price} &= \text{Strike Price} - \text{Premium received} \\ &= 12,600 - 510 \\ &= \text{Rs. } 12,090 \end{aligned}$$

If the futures price moves higher than the put strike price of Rs.12,600, the put options holder will not execute his right thereby resulting in a maximum/limited profit for the options writer to the extent of premium received. If the futures price falls below the strike price, the options holder will execute his right and that gives an unlimited loss to the put options writer.

**Table 5.5 Short Put Strategy**

Futures Price on 3 <sup>rd</sup> Month (A)	Basis of Local Mandi (B)	Local Mandi Price (C) = (A) - (B)	Profit/Loss on Options (D)	Effective Purchase Price (E) = (C) ± (D)
12,000	100	11,900	( ) 90	11,990
12,100	100	12,000	10	11,990
12,200	100	12,100	110	11,990
12,300	100	12,200	210	11,990
12,400	100	12,300	310	11,990
12,500	100	12,400	410	11,990
12,600	100	12,500	510	11,990
12,700	100	12,600	510	12,090
12,800	100	12,700	510	12,190

**Note** Effective purchase price is calculated by adding Loss on Options and subtracting Gain on Options with Local Mandi Price.

$$\begin{aligned} \text{Floor Buying Price} &= \text{Put Strike Price} - \text{Options Premium received} + \text{Basis on Local Mandi} \\ &= 12,600 - 510 + 100 \\ &= \text{Rs. } 11,990/ \end{aligned}$$

Whatever market price may be, the commodity buyer's purchase price will not fall below Rs. 11,990.

Thus, by applying this strategy the minimum purchase price of the buyer is locked by to be Rs.11,990. As this strategy is applied only in stable market condition, the risk in price will not be more and so the purchase price is expected not to be high. The premium received from writing put options helps in reducing the purchase price as illustrated for futures price condition at Rs.12,700 and Rs. 12,800. Unlike the long call, short put strategy has to be exercised.

- **Exercise the Put options** as an options writer, upon exercise, the trader has to oblige the contract by buying the underlying futures at the strike price resulting in an unlimited loss position of Floor Purchase Price.

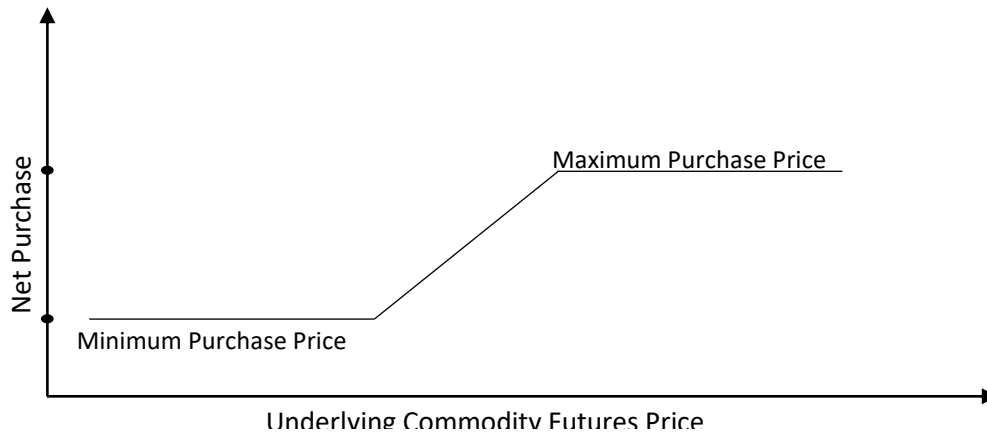
### 3) Long Call and Short Put

To fix up both ceiling and floor prices a trader may combine the above discussed two strategies. This strategy is commonly used by buyers when the market condition is bullish and the volatility is undecided. When a trader buys a call he has to pay the premium and when he writes a put he receives a premium. The premium received can be used to meet out the cost of premium

payable thereby further reducing the risk of the buyer. In this strategy, the buyer longs a call and short a put simultaneously, but the strike prices at which he buys call and writes put depends upon his price objective and risk exposure. Generally, the buyer will take up atthetmoney Call options and sell outofthetmoney Put options. As this strategy helps in building a price that ranges, both the loss and gain will be limited.

Maximum Purchase Price = Call strike Price + Call Premium paid Put Premium Received ± Expected Basis.

Minimum Purchase Price = Put Strike Price + Call Premium Paid Put Premium Received ± Expected Basis.



**Figure 5.7 Payoff of Long Call and Short Put Strategy**

**Example**

Assume the previous examples with buying the call at a strike price of Rs.12,500 by paying a premium of Rs.450 and selling the put at a strike price of Rs.12,300 by receiving a premium of Rs. 480, Basis remains at Rs.100.

**Ceiling Purchase Price** = 12,500 + 450 - 480 - 100 = Rs. 12,370

**Floor Purchase Price** = 12,300 + 450 - 480 - 100 = Rs. 12,170

**Table 5.6 Long Call and Short Put Strategy**

Futures Price On 3 <sup>rd</sup> Month (A)	Basis of Local Mandi (b)	Local Mandi Price (c) = (a) - (b)	Profit/Loss on Options (D)			Effective Purchase Price (E) = (C) ± (D)
			Call	Put	Total	
12,000	100	11,900	( ) 450	180	( ) 270	12,170
12,100	100	12,000	( ) 450	280	( ) 170	12,170
12,200	100	12,100	( ) 450	380	( ) 70	12,170
12,300	100	12,200	( ) 450	480	30	12,170
12,400	100	12,300	( ) 450	480	30	12,270
12,500	100	12,400	( ) 450	480	30	12,370
12,600	100	12,500	( ) 350	480	130	12,370
12,700	100	12,600	( ) 250	480	230	12,370
12,800	100	12,700	( ) 150	480	330	12,370

12,900	100	12,800	( ) 50	480	430	12,370
13,000	100	12,900	50	480	530	12,370

**Note** Effective purchase price is calculated by adding Loss on Options and subtracting Gain on Options with Local Mandi Price.

Whatever increase in market price may be, the buyer's purchase price will not exceed Rs. 12,370 and during decrease in market price the buyer's purchase price will not fall below Rs. 12,170.

Thus, by applying this strategy the minimum and maximum purchase price of the buyer is locked. This strategy is usually applied in unpredictable market condition. The premium received from writing put options helps in reducing the purchase price or options premium as illustrated above.

- **Exercise the Put options** as a holder and writer of the options contract, upon exercise, the trader has to oblige to execute put options and enjoy right on call options. Thus, the call options contract has limited loss up to the excess options premium paid and the put options resulting in an unlimited loss position.

### Hedging for Sellers

A seller is a trader who wants to take a short position in the commodity and generally fears for commodity price fall. He can use both futures and options to hedge his risk. In futures, taking a short futures position is enough but when it comes to options, a seller can do it in two ways,

- Sell a Call Options contract
- Buy a Put Options contract
  - Sell a Call Options Contract** Call Options is a contract to buy the underlying asset. Selling a Call Options contract gives the trader a condition to sell the underlying commodity futures (i.e.,) a short position on the commodity futures contract which in turn gives a short position on the commodity upon expiry.
  - Buy a Put Options Contract** Put Options is a contract to sell the underlying asset. Buying a Put Options contract gives the trader a direct position to sell the underlying commodity futures contract that in turn gives a short position on the commodity upon expiry.

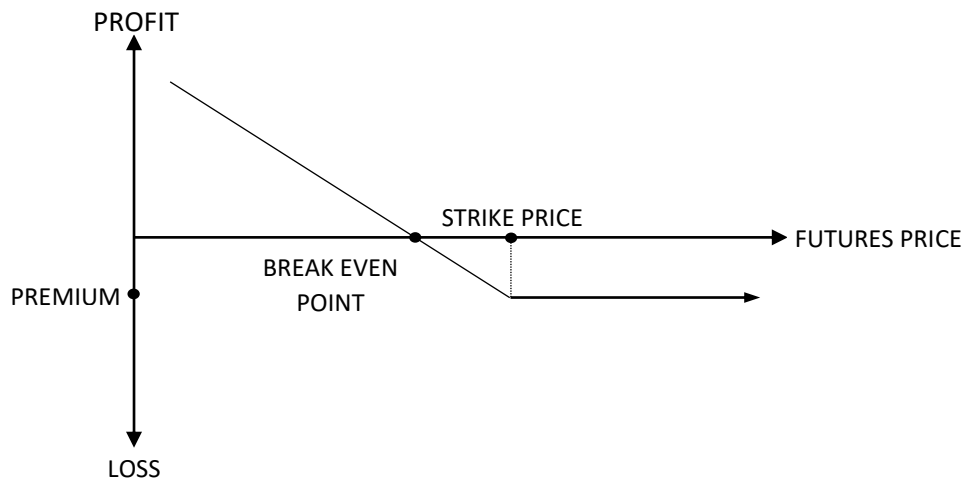
The Options strategies used by sellers to hedge their risk are

- 1) Long Put
- 2) Short Call
- 3) Long Put and Short Call

#### 1) Long Put

Long Put strategy means buying the Put Options which gives a short hedge position of the underlying futures. This strategy is commonly used by the sellers when the market condition is expected to be volatile and bearish. This strategy benefits the Options holder when he executes his right when the underlying futures price falls below the strike price. Long Put provides flexibility in achieving downwards insurance and upwards potential profit. As the holder of Put Options, the trader has to pay the Options premium which acts as his cost. Using this strategy the seller can fix up a floorselling price which can be computed by;

**FloorSelling price = Put Strike Price Premium Paid ± Basis of Local Mandi if any.**



**Figure 5.8 Payoff of Long Put Strategy**

**Example**

A farmer of Guar Seed expects production of 10 Metric Ton of Guar Seed after 3 months. He predicts the market to be bearish in the next 3 months and wants to hedge his price risk. The farmer opts for Options so as to enjoy the advantage of potential profit during price rise. The Strike price and premium for the call and put options are same as that of Table 5.3.1 which is again repeated below in Table 5.3.5. Currently, the 3 months Guar Seed futures contract is trading at Rs. 12,500 and the local mandi price has a constant basis of Rs. 100 with the futures (i.e.,) if a Guar Seed futures contract is trading at Rs. 12,000, the local mandi price will be Rs. 11,900 ( $12,000 - 100 = 11,900$ ).

**Table 5.7 Call and Put Options Premium**

Strike Price	Call Premium	Put Premium
12,000	500	450
12,100	490	460
12,200	480	470
12,300	470	480
12,400	460	490
12,500	450	500
12,600	440	510
12,700	430	520
12,800	420	530
12,900	410	540
13,000	400	550

**Solution**

As the 3 months Guar Seed futures contract is trading at Rs. 12,500 and keeping in view the bearish condition in the market the trader chooses an in the money put options contract with a strike price of Rs. 12,500 for which he pays a premium of Rs. 500. Thus, the Break-Even Price will be Rs. 12,000 (Strike price Rs. 12,500 Options Premium Rs. 500). If the futures price goes below the Break-Even Price, the buyer will execute the Options contract and earn unlimited profit. If the futures price goes above the Break-Even Price, the buyer will allow the Options contract to expire worthless and incur

a limited loss upto the amount of Options premium paid. Let's see the various price conditions on expiry and the profit/loss position of the Options buyer.

**Table 5.8 Long Put Strategy**

<b>Futures Price on 3<sup>rd</sup> Month (A)</b>	<b>Basis of Local Mandi (B)</b>	<b>Local Mandi Price (C) = (A) (B)</b>	<b>Profit/Loss on Options (D)</b>	<b>Effective Selling Price (E) = (C) ± (D)</b>
12,300	100	12,200	( ) 300	11,900
12,400	100	12,300	( ) 400	11,900
12,500	100	12,400	( ) 500	11,900
12,600	100	12,500	( ) 500	12,000
12,700	100	12,600	( ) 500	12,100
12,800	100	12,700	( ) 500	12,200
12,900	100	12,800	( ) 500	12,300
13,000	100	12,900	( ) 500	12,400

**Note** Effective selling price is calculated by subtracting Loss on Options and adding Gain on Options with Local Mandi Price.

**Floor Selling Price** = Put Strike Price Options Premium Basis on Local Mandi

$$= 12,500 - 500 - 100$$

$$= \text{Rs. } 11,900/$$

Whatever decrease in market price may be, the seller's selling price will not fall below Rs. 11,900.

- **Exercise the Put Options** The Put Options holder will exercise his right when the market price decreases below the strike price. Through the Long Put Options strategy, the put Options buyer can fix up the floor selling price (i.e.,) minimum selling price.
- **Expiry of Put Options** If price increases above the strike price the buyer will let the Options to expire resulting in limited loss of Options premium paid.
- **Offsetting the Put Options** When a buyer doesn't want to take the futures position he goes for offsetting the Put Options position by writing the same amount of Put at the same strike price. The premium paid on long Put will be different from the premium received on Short Put. Thus, the net selling price in offsetting condition can be calculated by;

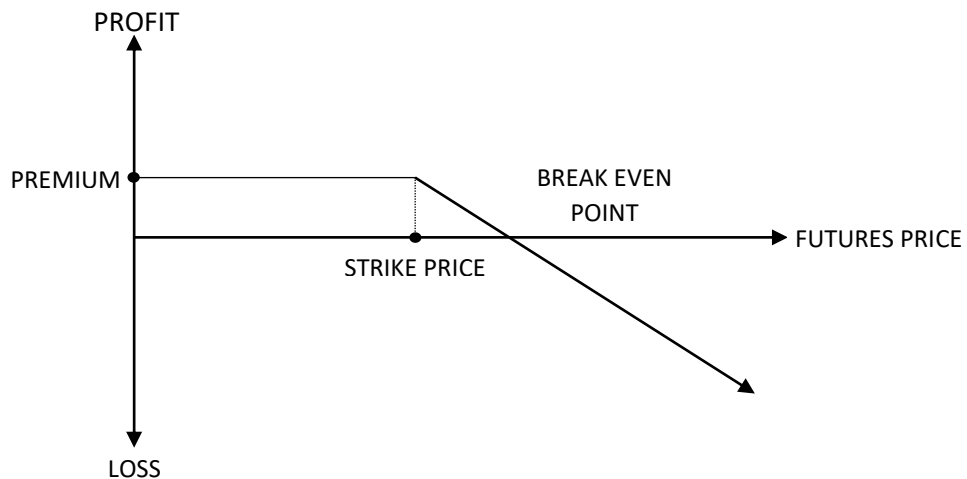
Net Purchase price = Underlying Futures price at the time of commodity sale ± Basis of Local mandiat the time of Sale + Premium paid on Long Put Premium received on Short Put.

## 2) Short Call

Another strategy for taking up a short position on a commodity by a seller is by writing the call options. This strategy is commonly used by buyers when the market condition is expected to be stable and bearish. While writing a calloptions contract the trader becomes the call options writer who is obliged to fulfill the contract on the demand of the options holder for which he receives an options premium. Thus, the selling price of the trader gets higher to the extent of options premium received by him. This strategy helps the seller to fix a ceilingselling price and the objective of this strategy is to increase the selling price in a stable market condition.

Ceiling Selling Price = Call strike Price + Premium received ± Basis of Local Mandi if any.





**Figure 5.9 Payoff of Short Call Strategy**

**Example**

Consider the same example of 5.3.4 but the market condition is relatively stable here and the trader expects the Guar Seed price to fall not more than Rs. 12,700 for which he writes a call options contract at Rs.12,700 and receive a premium of Rs. 430.

$$\begin{aligned} \text{Break Even Price} &= \text{Strike Price} + \text{Premium received} \\ &= 12,700 + 430 \\ &= \text{Rs. } 13,130 \end{aligned}$$

If the futures price moves lower than the call strike price of Rs.12,700, the call options holder will not execute his right thereby resulting in a maximum/limited profit for the options writer to the extent of premium received. If the futures price rises above the strike price, the options holder will execute his right and that gives an unlimited loss to the call options writer.

**Table 5.9 Short Call Strategy**

Futures Price on 3 <sup>rd</sup> Month (A)	Basis of Local Mandi (B)	Local Mandi Price (C) = (A) (B)	Profit/Loss on Options (D)	Effective Selling Price (E) = (C) ± (D)
12,000	100	11,900	430	12,330
12,100	100	12,000	430	12,430
12,200	100	12,100	430	12,530
12,300	100	12,200	430	12,630
12,400	100	12,300	430	12,730
12,500	100	12,400	430	12,830
12,600	100	12,500	430	12,930
12,700	100	12,600	430	13,030
12,800	100	12,700	330	13,030
12,900	100	12,800	230	13,030
13,000	100	12,900	130	13,030

**Note** Effective selling price is calculated by subtracting Loss on Options and adding Gain on Options with Local Mandi Price.

**Ceiling Selling Price** = Call Strike Price + Options Premium received Basis on Local Mandi

$$= 12,700 - 430 - 100$$

$$= \text{Rs. } 13,030/$$

Whatever increase in market price may be, the seller's selling price will not exceed above Rs. 13,030.

Thus, by applying this strategy the maximum sale price of the seller is locked to be Rs.13,030. As this strategy is applied only in stable market condition, the risk in price will not be more and so the sale price is expected not to be low. The premium received from writing call options helps in increasing the sale price as illustrated in the above example. Unlike the long put, short call strategy has to be exercised on options holder demand.

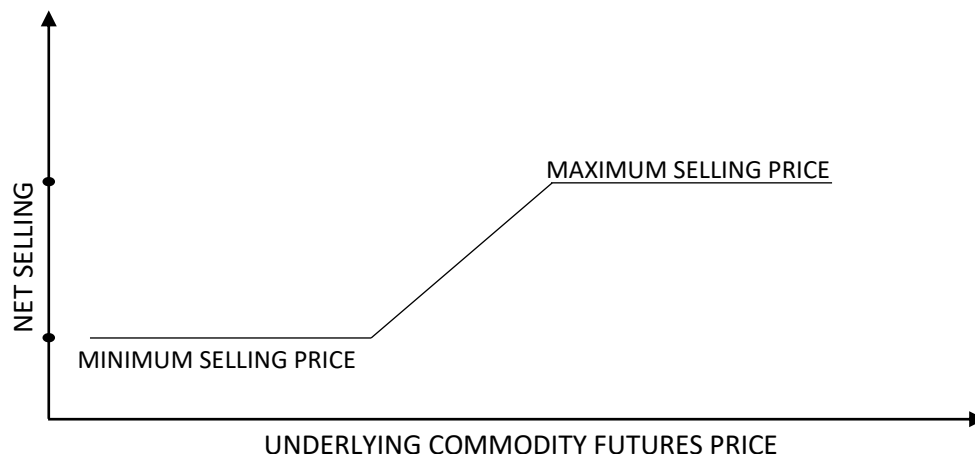
- **Exercise the Call options** as an options writer, upon exercise, the trader has to oblige the contract by selling the underlying futures at the strike price resulting in an unlimited loss position during the rise in futures Price.

### 3) Long Put and Short Call

Long Put and Short Call is the strategy used to fix both ceiling and floor prices by a trader. This strategy is commonly used by buyers when the market condition is expected to be bearish with unpredictable volatility. When a trader buys a put he has to pay the premium and when he writes a call he receives a premium. The premium received can be used to meet out the cost of premium payable thereby further reducing the risk of the seller. The strike prices at which he buys put and writes call depends upon his price objective and risk exposure. Generally, the trader will buy at the money put and sell out of the money call. As this strategy helps in building price ranges, both the loss and gain will be limited.

Minimum Selling Price = Put Strike Price + Call Premium Received - Put Premium Paid ± Expected Basis.

Maximum Selling Price = Call strike Price + Call Premium Received - Put Premium Paid ± Expected Basis.



**Figure 5.10 Payoff of Long Put and Short Call Strategy**

#### Example

Assume the examples 5.3.4 and 5.3.5 with buying the put at a strike price of Rs.12,500 by paying a premium of Rs.500 and selling the call at a strike price of Rs.12,700 by receiving a premium of Rs. 430, Basis remains at Rs.100.

Ceiling Sale Price = 12,700 + 430 500 100= Rs. 12,530

Floor Sale Price= 12,500 + 430 500 100= Rs. 12,330

**Table 5.11 Long Put and Short Call Strategy**

Futures Price on 3 <sup>rd</sup> Month (A)	Basis of Local Mandi (B)	Local Mandi Price (C) = (A) (B)	Profit/Loss on Options (D)			Effective Selling Price (E) = (C) ± (D)
			CALL	PUT	TOTAL	
12,000	100	11,900	430	0	430	12,330
12,100	100	12,000	430	( ) 100	330	12,330
12,200	100	12,100	430	( ) 200	230	12,330
12,300	100	12,200	430	( ) 300	130	12,330
12,400	100	12,300	430	( ) 400	30	12,330
12,500	100	12,400	430	( ) 500	( ) 70	12,330
12,600	100	12,500	430	( ) 500	( ) 70	12,430
12,700	100	12,600	430	( ) 500	( ) 70	12,530
12,800	100	12,700	330	( ) 500	( ) 170	12,530
12,900	100	12,800	230	( ) 500	( ) 270	12,530
13,000	100	12,900	130	( ) 500	( ) 370	12,530

**Note** Effective selling price is calculated by subtracting Loss on Options and adding Gain on Options with Local Mandi Price.

Whatever increase or decrease in market price, the seller's selling price will not exceed Rs. 12,530 and will not fall below Rs. 12,330.

Thus, by applying this strategy the minimum and maximum sale price of the seller is locked. This strategy is usually applied in unpredictable market condition. The premium received from writing call options helps in increasing the selling price as illustrated above.

- **Exercise the Call options** As an options holder and writer, upon exercise, the trader has to oblige to execute call options and enjoy right on put options. Thus, the put options contract has limited loss up to the excess options premium paid and the call options resulting in an unlimited loss position.

Hedgers are risk-averse market participants who trade with options to mitigate their risk. They fear for a loss more than gain, thus, in order to overcome this, they follow some strategies. The hedgers can be broadly classified under two categories such as buyers (the one who is in need of the commodity) and sellers (the one who is in surplus of the commodity). The buyers' strategies will aim at acquiring the commodity with limited loss and the sellers' strategies will aim at disposing of the commodity with less loss. The major strategies used by the buyers are Long Call, Short Put and Long Call and Short Put. The Long Call strategy is used during bullish cum volatile market condition where the Ceiling purchase price is fixed. The Short Put strategy is used during bullish cum stable market condition where the Floor purchase price is fixed. The Long Call and Short Put strategies are usually done under bullish but unpredictable volatile market condition. The major strategies used by the seller are Long Put, Short Call and Long Put and Short Call. The Long Put strategy is used during bearish cum volatile market condition where the Floor sale price is fixed. The Short Call strategy is used during bearish cum stable market condition where the Ceiling sale price is fixed. The Long Put

and Short Call strategy is usually done under bearish but unpredictable volatile market condition. Based on the market condition and hedgers' risktaking capacity, the hedging strategies are applied.

#### **To D Activity**

Each one can build up options strategy and discuss them in class pointing out how their strategy is effective and the reason for building that strategy.

### **5.4 Speculative Strategies Using Commodity Options**

The commodity options are not only used by hedgers but also by other market participants such as Speculators and Arbitrageurs. Arbitrageurs are persons who use the price advantage to make a profit. In contrast to the spot market or futures market, there will be no arbitrage opportunity in trading options. Thus, the market participant dealing with options other than hedgers will be speculators who use options to earn profit from rising or fall in price. The speculators also use various strategies to earn a profit and this focuses on that topic of options strategies widely used by speculators. The covers speculators options strategies such as

- Options for speculators
  - Spreads
  - Straddles
  - Strangle
  - Strips and Straps

#### **Options for Speculators**

Speculators are one of the main market participants who make the market liquid and help the hedgers to buy or sell the options quickly. As the speculators aim at making a profit from price changes, they are obvious to use strategies by using Call options during price rise and Put options during price fall. Thereby, they intend to make an unlimited profit with limited risk on premium. Well versed participants know strategies that offer profit opportunity if the underlying futures prices move in either direction.

#### **Spreads**

Spread strategies use two or more options of the same type (i.e.,) two or more Call options or two or more Put options to take advantage of profit opportunity by buying one contract and selling another contract. The different types of spread strategies are

- (i). Horizontal spreads
- (ii). Vertical spreads

#### **(i). Horizontal Spreads**

Horizontal spreads are known as time spreads or calendar spreads which uses combinations of the same type of options contract either Call or Put at same strike price but for the different time period (i.e.,) near month, midmonth and far month. The horizontal spreads can be further classified as

- **Long Calendar Spread** This strategy involves buying the far month options and selling the near month options. As options value decays by time, the far month options contract generally has a higher value than the near month options. Thus, the long calendar spread will result in a payment of premium as the speculator has to pay a higher premium for buying far month options than the premium received by him from selling near month options.

- **Short Calendar Spread** This is a reverse strategy to the Long Calendar Spread where, the near month options contract is bought and the far month options contract is sold. In this strategy the speculator will have a receipt of premium as he pays lesser a premium on buying near month options and receives a higher premium on selling far month options.

#### Example

A trader of Guarseed predicts the market to be bullish and wishes to take advantage from the price changes through Guarseed Options. The various Strike price and premium for the call and put options of March and April contracts are given below in Table 5.4.1. The Guarseed futures in February is trading at Rs. 12,250.

**Table 5.12 Call and Put Options Premium**

March Contract			April Contract		
Strike Price	Call Premium	Put Premium	Strike Price	Call Premium	Put Premium
12,000	500	450	12,000	550	500
12,100	490	460	12,100	540	510
12,200	480	470	12,200	530	520
12,300	470	480	12,300	520	530
12,400	460	490	12,400	510	540
12,500	450	500	12,500	500	550
12,600	440	510	12,600	490	560
12,700	430	520	12,700	480	570
12,800	420	530	12,800	470	580
12,900	410	540	12,900	460	590
13,000	400	550	13,000	450	600

#### Solution

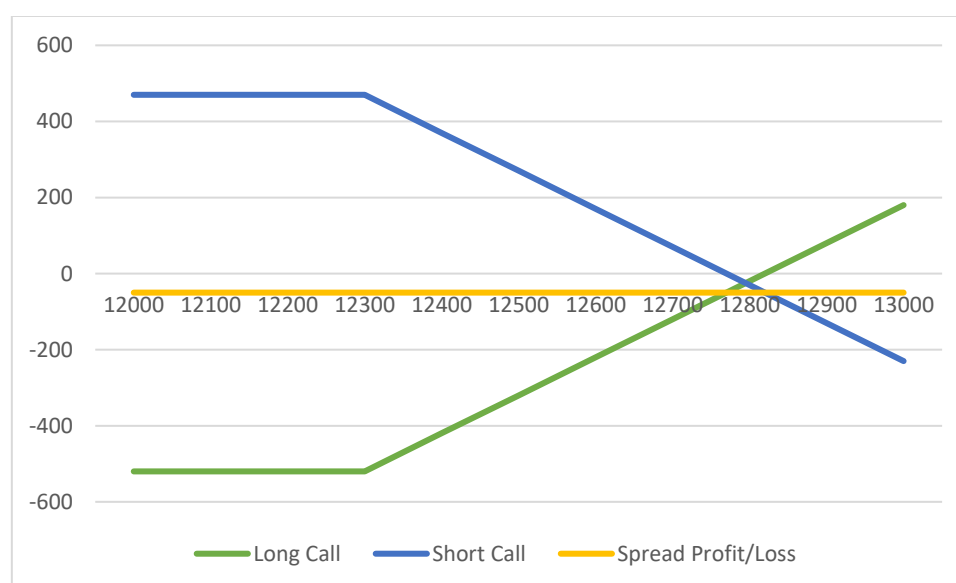
If the trader applies Horizontal Spread strategy (i.e.,) by simultaneously buying and selling same type of Options at the same strike price but for different expiry, then his profit/loss from the strategies will be as follows

- Long Calendar Spread** strategy by buying the April (farmonth) Call contract and selling the March (nearmonth) Call contract at the strike price of Rs. 12,300 gives the trader a net premium payment of Rs. 50 as the call premium of April contract (Rs. 520) is higher than the March contract (Rs. 470). The trader's profit/loss on long calendar spread strategy is explained in the table below.

**Table 5.13 Long Calendar Spread Strategy**

	Buy April Contract at Strike Price Rs. 12,300			Sell March Contract at Strike Price Rs. 12,300			
Futures Price at Expiry	Cost on Call Premium	Profit/Loss at Expiry	Long Call Profit/Loss	Income on Call Premium	Profit/Loss at Expiry	Short Call Profit/Loss	Spread Profit/Loss
12,000	520	0	520	470	0	470	50
12,100	520	0	520	470	0	470	50
12,200	520	0	520	470	0	470	50
12,300	520	0	520	470	0	470	50
12,400	520	100	420	470	100	370	50
12,500	520	200	320	470	200	270	50
12,600	520	300	220	470	300	170	50
12,700	520	400	120	470	400	70	50
12,800	520	500	20	470	500	30	50
12,900	520	600	80	470	600	130	50
13,000	520	700	180	470	700	230	50

If the underlying futures value of Guarseed is Rs. 12,400 upon expiry of March contract, the trader will have a profit of Rs. 370 on short call. This profit benefits the trader in reducing his cost on long call premium and will start earning a profit if Guarseed futures moves above Rs. 12,450.



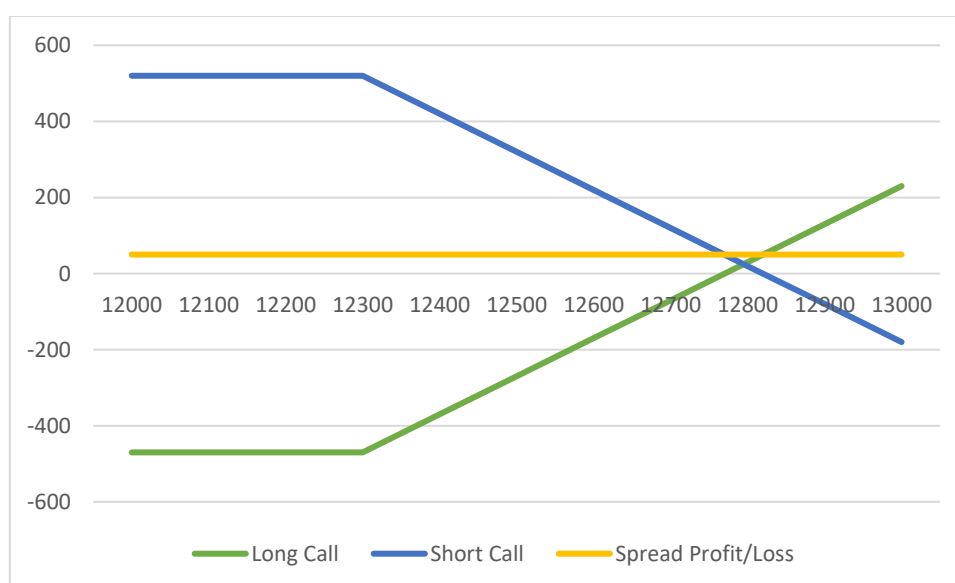
**Figure 5.10 Long Calendar Spread Strategy**

- b) Short Calendar Spread** strategy by buying the March (nearmonth) Call contract and selling the April (farmonth) Call contract at the strike price of Rs. 12,300 gives the trader a net premium receipt of Rs. 50 as the call premium of April contract (Rs. 520) is higher than the March contract (Rs. 470). The trader's profit/loss on short calendar spread strategy is explained in the table below.

**Table 5.13 Short Calendar Spread Strategy**

Futures price at expiry	Buy March Contract at Strike Price Rs.12,300			Sell April Contract at Strike Price Rs.12,300			Spread Profit/Loss
	Cost on Call Premium	Profit/Loss at Expiry	Long Call Profit/Loss	Income on Call Premium	Profit/Loss at Expiry	Short Call Profit/Loss	
12,000	470	0	470	520	0	520	50
12,100	470	0	470	520	0	520	50
12,200	470	0	470	520	0	520	50
12,300	470	0	470	520	0	520	50
12,400	470	100	370	520	100	420	50
12,500	470	200	270	520	200	320	50
12,600	470	300	170	520	300	220	50
12,700	470	400	70	520	400	120	50
12,800	470	500	30	520	500	20	50
12,900	470	600	130	520	600	80	50
13,000	470	700	230	520	700	180	50

If the underlying futures value of Guarseed is Rs. 12,400 upon expiry of March contract, the trader will have a loss of Rs. 370 on long call. This adds up burden to the profit position of April short call by fetching up loss if the Guarseed futures moves above Rs. 12,450.



**Figure 5.11 Short Calendar Spread Strategy**

**(ii). Vertical Spreads**

Vertical spreads use combinations of same type of options contract (i.e.,) either all Calls or Puts of the same expiry but at the different strike price. This strategy can be created at both bullish and bearish market conditions. The profits are determined by the widening and narrowing of the difference in options premium between the buy and sell options positions. The vertical spreads can be further classified as

- **Bull Spreads** This options strategy is used during moderately bullish market expectation where the same type of options with lower strike price is bought and the higher strike price is sold with the same expiry.
  - **Bull Call Spread** This strategy involves buying a Call options contract with a lower strike price (In the money) and selling a Call options contract with a higher strike price (Out of the money) for the same expiry. Lower strike price Call options will have a higher premium that is to be paid while the higher strike price Call options contract has a lower premium that is to be received, hence this spread strategy reduces the cost of purchasing the options. The breakeven point for this strategy will be equal to the sum of the strike price of long Call options contract and net premium paid. This strategy is profitable during the price rise of the underlying where the Call options with lower strike price will be sold at a price higher than the price offsetting the net premium received. Thus, the maximum profit is limited to the difference between the strike prices of Call options minus the net premium paid and the maximum loss is limited to the net premium paid.
  - **Bull Put Spread** This strategy involves buying a Put options contract with a lower strike price (Out of the money) and selling a Put options contract with a higher strike price (Out of the money) for the same expiry. Lower strike price Put options will have a lower premium to be paid while the higher strike price Put options contract has a higher premium that is to be received, thus, this strategy has an excess net premium received. The breakeven point of this strategy lies at the price equal to the difference of short Put options strike price and net premium received. This strategy benefits when the price of the underlying stays above the higher strike price where both the options will not be exercised thereby resulting in a maximum profit limited to that of the net premium received and maximum loss limited to the difference between the strike prices of Put options minus the net premium received.
- **Bear Spreads** This options strategy is used during moderately bearish market expectation where the same type of options, one with higher strike price is bought and another with lower strike price is sold with the same expiry.
  - **Bear Call Spread** This options strategy involves buying a Call options contract with a higher strike price (Out of the money) and selling a Call options contract with a lower strike price (In the money) for same expiry. The higher strike price Call options contract fetches a lower premium to be paid while the lower strike price Call options contract fetches a higher premium to be received resulting in a receipt of net options premium. The breakeven point of this strategy will be equal to the sum of the strike price of short Call options and net premium received. This strategy will earn a maximum profit limited to the net premium received and maximum loss limited to the difference of two strike price of Call options minus the net premium received.



- **Bear Put Spread** This options strategy involves buying a Put options contract with a higher strike price (In the money) and selling a Put options contract (Out of the money) with a lower strike price for the same expiry. The higher strike price Put options will fetch higher premium whereas, the lower strike price Put options will fetch a lower premium, thus, this strategy results in a net premium payable condition. The breakeven point of this strategy will be equal to the difference in strike price of long Put options and net premium paid. In this strategy the speculator will sell at a higher price and buy back at a lower price resulting in a maximum profit limited to the difference of two strike price of Put options minus net premium paid and the maximum loss is limited to the net premium paid.

### Example

A trader of Guarseed predicts the market to be bullish in March and wishes to take advantage from the price changes through Guarseed Options. The various Strike price and premium for the call and put options of March contract is given below in Table 5.4.4. The Guarseed futures in February is trading at Rs. 12,200.

**Table 5.14 Call and Put Options Premium**

March Contract		
Strike Price	Call Premium	Put Premium
12,000	500	450
12,100	490	460
12,200	480	470
12,300	470	480
12,400	460	490
12,500	450	500
12,600	440	510
12,700	430	520
12,800	420	530
12,900	410	540
13,000	400	550

### Solution

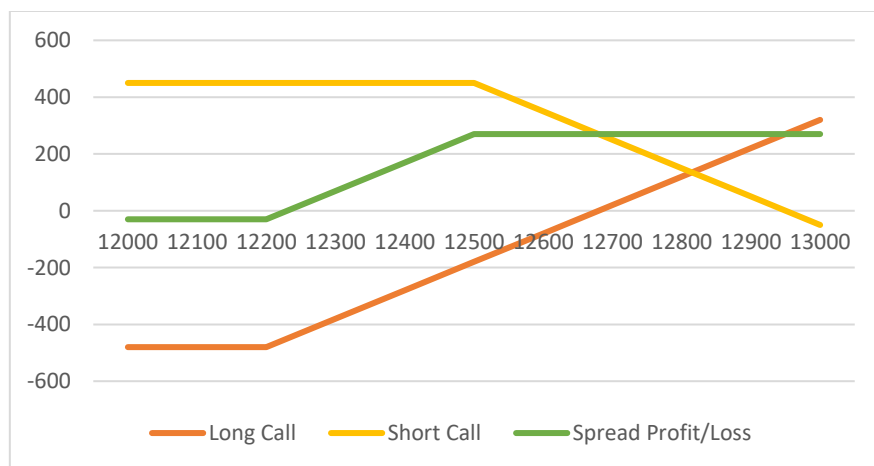
If the trader applies Vertical Spread strategy (i.e.,) by simultaneously buying and selling same type of Options for the same expiry but at different strike price, then his profit/loss from the strategies will be as follows

- Bull Call Spread Strategy** The trader buys a March Call at strike price of Rs. 12,200 and sells a March Call at strike price of Rs. 12,500 with premium payable of Rs. 480 and premium receivable of Rs. 450. The Profit/Loss of the trader at various futures price condition upon expiry is given in the below table.

**Table 5.15 Bull Call Spread Strategy**

Futures Price at Expiry	Buy Rs. 12,200 Call			Sell Rs. 12,500 Call			Spread Profit/Loss
	Cost on Call Premium	Profit/Loss at Expiry	Long Call Profit/Loss	Income on Call Premium	Profit/Loss at Expiry	Short Call Profit/Loss	
12,000	480	0	480	450	0	450	30
12,100	480	0	480	450	0	450	30
12,200	480	0	480	450	0	450	30
12,300	480	100	380	450	0	450	70
12,400	480	200	280	450	0	450	170
12,500	480	300	180	450	0	450	270
12,600	480	400	80	450	100	350	270
12,700	480	500	20	450	200	250	270
12,800	480	600	120	450	300	150	270
12,900	480	700	220	450	400	50	270
13,000	480	800	320	450	500	50	270

By buying the March Call contract at the strike price of Rs. 12,200 and selling the March Call contract at the strike price of Rs. 12,500, the trader gets a maximum loss of Rs. 30 (net premium paid) and maximum profit of Rs. 270 (Difference between the two strike prices minus net premium paid).



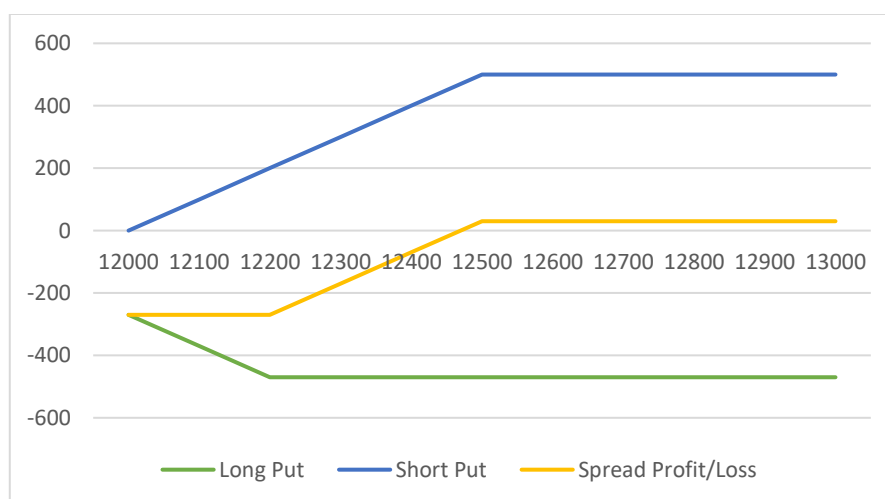
**Figure 5.11 Bull Call Spread Strategy**

- b) Bull Put Spread Strategy** The trader buys a March Put at strike price of Rs. 12,200 and sells a March Put at strike price of Rs. 12,500 with premium payable of Rs. 470 and premium receivable of Rs. 500. The Profit/Loss of the trader at various futures price condition upon expiry is given in the below table.

**Table 5.16 Bull Put Spread Strategy**

Futures Price at Expiry	Buy Rs. 12,200 Put			Sell Rs. 12,500 Put			Spread Profit/Loss
	Cost on Put Premium	Profit/Loss at Expiry	Long Put Profit/Loss	Income on Put Premium	Profit/Loss at Expiry	Short Put Profit/Loss	
12,000	470	200	270	500	500	0	270
12,100	470	100	370	500	400	100	270
12,200	470	0	470	500	300	200	270
12,300	470	0	470	500	200	300	170
12,400	470	0	470	500	100	400	70
12,500	470	0	470	500	0	500	30
12,600	470	0	470	500	0	500	30
12,700	470	0	470	500	0	500	30
12,800	470	0	470	500	0	500	30
12,900	470	0	470	500	0	500	30
13,000	470	0	470	500	0	500	30

By buying the March Put contract at the strike price of Rs. 12,200 and selling the March Put contract at the strike price of Rs. 12,500, the trader gets a maximum loss of Rs. 270 (Difference between the two strike prices minus net premium received) and maximum profit of Rs. 30 (net premium received).



**Figure 5.12 Bull Put Spread Strategy**

**Example**

A trader of Guarseed predicts the market to be bearish in March and wishes to take advantage from the price changes through Guarseed Options. The various Strike price and premium for the call and put options of March contract is given below in Table 5.4.7. The Guarseed futures in February is trading at Rs. 12,200.

**Table 5.17 Call and Put Options Premium**

March Contract		
Strike Price	Call Premium	Put Premium
12,000	500	450
12,100	490	460
12,200	480	470
12,300	470	480
12,400	460	490
12,500	450	500
12,600	440	510
12,700	430	520
12,800	420	530
12,900	410	540
13,000	400	550

**Solution**

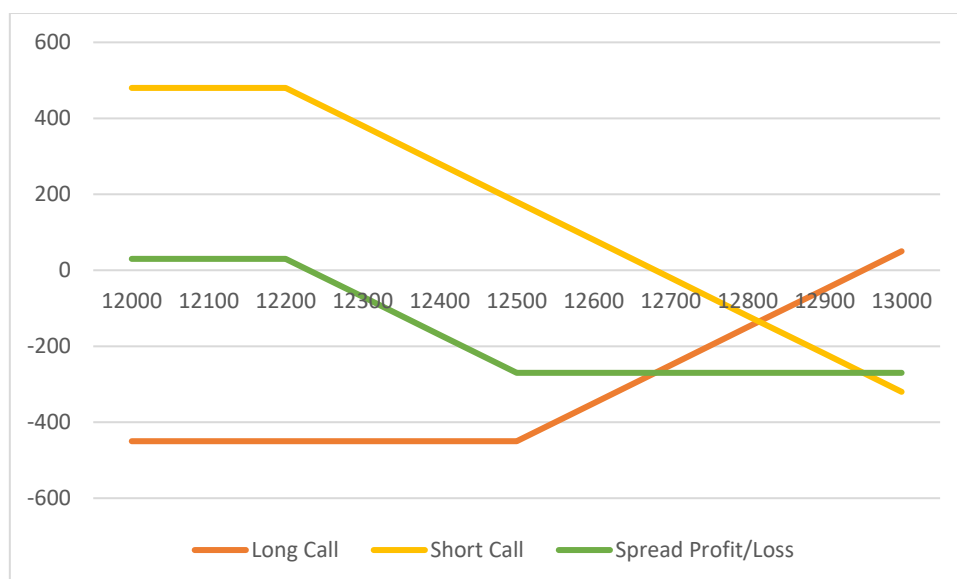
If the trader applies Vertical Spread strategy (i.e.,) by simultaneously buying and selling same type of Options for the same expiry but at different strike price, then his profit/loss from the strategies will be as follows

- a) **Bear Call Spread Strategy** The trader buys a March Call at strike price of Rs. 12,500 and sells a March Call at strike price of Rs. 12,200 with premium payable of Rs. 450 and premium receivable of Rs. 480. The Profit/Loss of the trader at various futures price condition upon expiry is given in the below table.

**Table 5.18 Bear Call Spread Strategy**

Futures Price at Expiry	Buy Rs. 12,500 Call			Sell Rs. 12,200 Call			Spread Profit/Loss
	Cost on Call Premium	Profit/Loss at Expiry	Long Call Profit/Loss	Income on Call Premium	Profit/Loss at Expiry	Short Call Profit/Loss	
12,000	450	0	450	480	0	480	30
12,100	450	0	450	480	0	480	30
12,200	450	0	450	480	0	480	30
12,300	450	0	450	480	100	380	70
12,400	450	0	450	480	200	280	170
12,500	450	0	450	480	300	180	270
12,600	450	100	350	480	400	80	270
12,700	450	200	250	480	500	20	270
12,800	450	300	150	480	600	120	270
12,900	450	400	50	480	700	220	270
13,000	450	500	50	480	800	320	270

By buying the March Call contract at the strike price of Rs. 12,500 and selling the March Call contract at the strike price of Rs. 12,200, the trader gets a maximum loss of Rs. 270 (Difference of two strike prices minus net premium received) and maximum profit of Rs. 30 (net premium received).



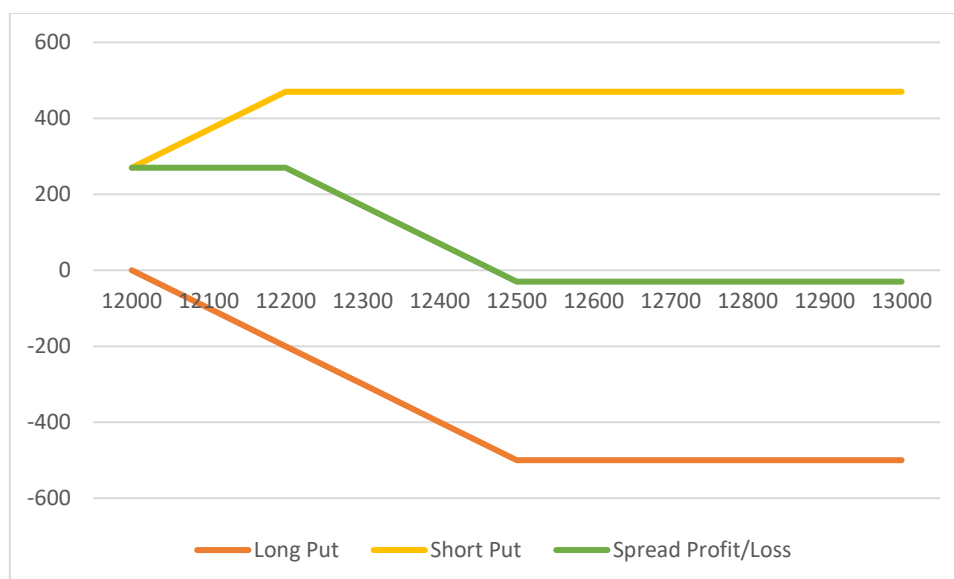
**Figure 5.13 Bear Call Spread Strategy**

- b) BearPut Spread Strategy** The trader buys a March Put at strike price of Rs. 12,500 and sells a March Put at strike price of Rs. 12,200 with premium payable of Rs. 500 and premium receivable of Rs. 470. The Profit/Loss of the trader at various futures price condition upon expiry is given in the below table.

**Table 5.19 Bear Put Spread Strategy**

Futures Price at Expiry	Buy Rs. 12,500 Put			Sell Rs. 12,200 Put			Spread Profit/Loss
	Cost on Put Premium	Profit/Loss at Expiry	Long Put Profit/Loss	Income on Put Premium	Profit/Loss at Expiry	Short Put Profit/Loss	
12,000	500	500	0	470	200	270	270
12,100	500	400	100	470	100	370	270
12,200	500	300	200	470	0	470	270
12,300	500	200	300	470	0	470	170
12,400	500	100	400	470	0	470	70
12,500	500	0	500	470	0	470	30
12,600	500	0	500	470	0	470	30
12,700	500	0	500	470	0	470	30
12,800	500	0	500	470	0	470	30
12,900	500	0	500	470	0	470	30
13,000	500	0	500	470	0	470	30

By buying the March Put contract at the strike price of Rs. 12,500 and selling the March Put contract at the strike price of Rs. 12,200, the trader gets a maximum loss of Rs. 30 (net premium paid) and maximum profit of Rs. 270 (Difference of two strike prices minus net premium paid).



**Figure 5.14 Bear Put Spread Strategy**

### Straddles

A straddle is a strategy used in association with volatility than the price of the underlying asset. In this strategy the trader takes up the same market position of both Call options and Put options of the same underlying at the same strike price with the same expiry. When the implied volatility rises, the trader will buy straddle and when the implied volatility falls, the trader will sell straddle. The different types of straddle strategies are

- Long Straddle** This strategy involves the purchase of one Call options and one Put options of the same underlying at the same strike price with the same expiry. Thus, it is also known as buying a straddle. A long straddle is used during a volatile market condition where, the direction of price change is unpredictable. As a holder of options, the speculator will realize his options only when the underlying futures price rise above or falls below the strike price to the extent of total premium paid for both the Call and Put options. Thus, the maximum loss will be limited to the cost of two options (i.e.,) premium paid for the two options (Call and Put) and the maximum profit is unlimited. This strategy will have two breakeven points one on each direction. The upper breakeven point will be equal to the sum of long Call strike price and net premium paid and the lower breakeven point will be equal to the difference of long Put strike price and net premium paid.
- Short Straddle** This strategy is used during stable volatility condition which involves the sale of one Call options and one Put options of the same underlying at the same strike price with the same expiry. It is also known as selling a straddle. As a writer of options, the speculator is obliged to fulfill the options when the underlying futures price rise above (Call) or falls below (Put) the strike price. Thus, the speculator will enjoy a maximum profit till the options premium received on both Call and Put and will incur an unlimited loss after the upper and lower breakeven points of strike price plus premium received and strike price less premium received respectively. Here also there is two breakeven point with the upper breakeven point equaling

the sum of short Call strike price and net premium received and the lower breakeven point equaling the difference of short Put strike price and net premium received.

### Example

A trader of Guarseed who takes advantage from the price changes through Guarseed Options predicts the market to be volatile. The various Strike price and premium for the call and put options of March contract is given below in Table 5.4.10 and the Guarseed futures in February is trading at Rs. 12,500.

**Table 5.20 Call and Put Options Premium**

March Contract		
Strike Price	Call Premium	Put premium
12,000	500	450
12,100	490	460
12,200	480	470
12,300	470	480
12,400	460	490
12,500	450	500
12,600	440	510
12,700	430	520
12,800	420	530
12,900	410	540
13,000	400	550

### Solution

As the trader predicts the Guarseed prices to be volatile he may apply Straddle strategies (i.e.,) taking same market position of both Call options and Put options of the same underlying at the same strike price with the same expiry, then his profit/loss from the strategies will be as follows;

- a) **Long Straddle Strategy** The trader buys a March Call and Put at strike price of Rs. 12,500 with premium payable of Rs. 450 and Rs. 500 respectively. The Profit/Loss of the trader at various futures price condition upon expiry is given in the below table.

**Table 5.14 Long Straddle Strategy**

Futures Price at Expiry	Buy Rs. 12,500 Call			Buy Rs. 12,500 Put			Spread Profit/Loss
	Cost on Call Premium	Profit/Loss at Expiry	Long Call Profit/Loss	Cost on Put Premium	Profit/Loss at Expiry	Long Put Profit/Loss	
12,000	450	0	450	500	500	0	450
12,100	450	0	450	500	400	100	550
12,200	450	0	450	500	300	200	650
12,300	450	0	450	500	200	300	750
12,400	450	0	450	500	100	400	850
12,500	450	0	450	500	0	500	950
12,600	450	100	350	500	0	500	850
12,700	450	200	250	500	0	500	750
12,800	450	300	150	500	0	500	650
12,900	450	400	50	500	0	500	550
13,000	450	500	50	500	0	500	450

By buying the March Call and Put contract at the strike price of Rs. 12,500, the trader gets a protection against price movement in either directions in a highly volatile market. Thus, if the trade is not beneficial for the trader, he gets a maximum loss of Rs. 950 (net premium paid) and if the trade is beneficial for the trader, he gets an unlimited profit.

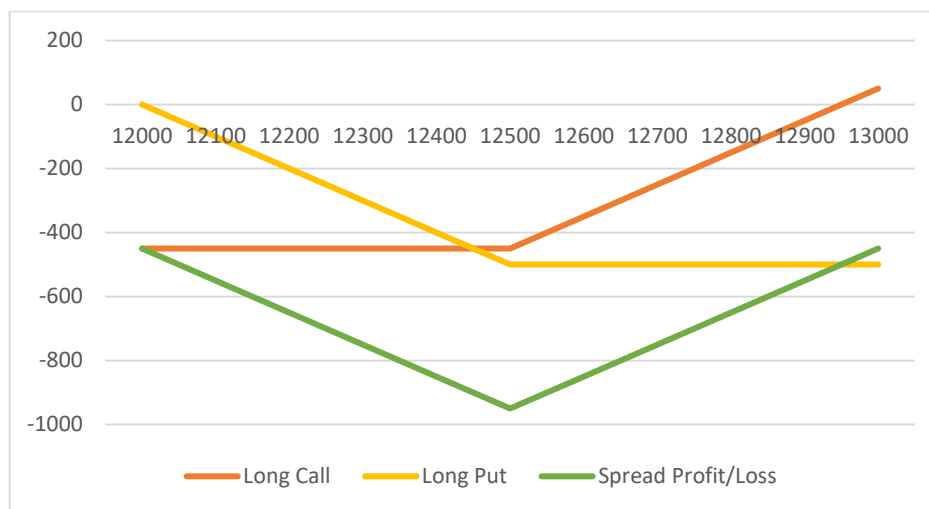


Figure 5.16 Long Straddle Strategy

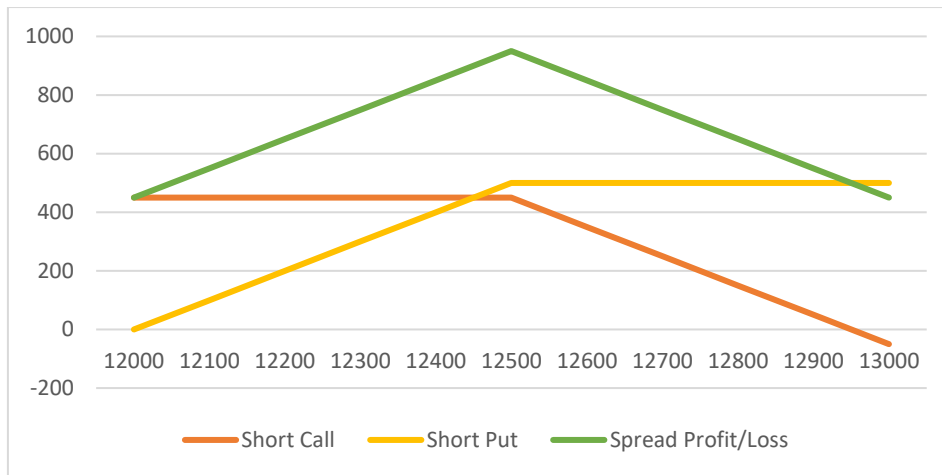
- b) **Short Straddle Strategy** The trader sells a March Call and Put at strike price of Rs. 12,500 with premium receivable of Rs. 450 and Rs. 500 respectively. The Profit/Loss of the trader at various futures price condition upon expiry is given in the below table.

Table 5.21 Short Straddle Strategy

Futures Price at Expiry	Sell Rs. 12,500 Call			Sell Rs. 12,500 Put			Spread Profit/Loss
	Income on Call Premium	Profit/Loss at Expiry	Short call Profit/Loss	Income on Put Premium	Profit/Loss at Expiry	Short Put Profit/Loss	
12,000	450	0	450	500	500	0	450
12,100	450	0	450	500	400	100	550
12,200	450	0	450	500	300	200	650
12,300	450	0	450	500	200	300	750
12,400	450	0	450	500	100	400	850
12,500	450	0	450	500	0	500	950
12,600	450	100	350	500	0	500	850
12,700	450	200	250	500	0	500	750
12,800	450	300	150	500	0	500	650
12,900	450	400	50	500	0	500	550
13,000	450	500	50	500	0	500	450

By selling the March Call and Put contract at the strike price of Rs. 12,500, the trader gets a premium advantage which reduces his risk in a stable volatile market. Thus, if the trade is beneficial for the trader, he gets a maximum profit of Rs. 950 (net premium received) and if the trade is not beneficial for the trader, he gets an unlimited loss.





**Figure 5.17 Short Straddle Strategy**

### Strangles

Strangle is also a similar trading strategy to straddle which considers market volatility than price change of underlying asset. This strategy involves a similar market position in both Call options and Put options of the same underlying with the same expiry but at different strike prices. The different types of straddle strategies are

- **Long Strangle** This strategy involves the purchase of one Call options with higher strike price and one Put options with lower strike price of the same underlying with the same expiry. It is also known as buying strangle. This strategy is suitable when markets are highly volatile. As the holder of options the trader's maximum loss will be limited to the total options premium paid and maximum gain will be unlimited. Similar to straddle, strangle also has two breakeven point with the upper breakeven point equaling the sum of Call options strike price and net premium and the lower breakeven point equaling the difference of Put options strike price and net premium.
- **Short Strangle** This strategy involves the sale of one Call options contract at the higher strike price (out of themoney) and one Put options contract at the lower strike price (out of themoney) of the same underlying with the same expiry. It is also known as selling strangle. This strategy is suitable when markets are nontrending or less trending. As the writer of options the trader's maximum gain will be limited to the total options premium received and maximum loss will be unlimited. Short strangle also has two breakeven point with the upper breakeven point equaling the sum of Call options strike price and net premium and the lower breakeven point equaling the difference of Put options strike price and net premium.

The straddles and strangles are highly risky strategies as the market breakouts in either direction can result in a loss.

### Example

A trader of Guarseed who takes advantage from the price changes through Guarseed Options predicts the market to be volatile. The various Strike price and premium for the call and put options of March contract is given below in Table 5.4.13 and the Guarseed futures in February is trading at Rs. 12,500.

**Table 5.22 Call and Put Options Premium**

March Contract		
Strike Price	Call Premium	Put Premium
12,000	500	450
12,100	490	460
12,200	480	470
12,300	470	480
12,400	460	490
12,500	450	500
12,600	440	510
12,700	430	520
12,800	420	530
12,900	410	540
13,000	400	550

**Solution**

As the trader predicts the Guarseed prices to be volatile he may also apply Strangle strategies (i.e.,) taking same market position of both Call options and Put options of the same underlying with the same expiry but at different strike price, then his profit/loss from the strategies will be as follows;

- a) **Long Strangle Strategy** The trader buys a March Call and Put at strike price of Rs. 12,500 and Rs. 12,300 with premium payable of Rs. 450 and Rs. 480 respectively. The Profit/Loss of the trader at various futures price condition upon expiry is given in the below table.

**Table 5.23 Long Strangle Strategy**

Futures Price at Expiry	buy Rs. 12,500 call			buy Rs. 12,300 put			Spread Profit/Loss
	Cost on Call Premium	Profit/Loss at Expiry	Long Call Profit/Loss	Cost on Put Premium	Profit/Loss at Expiry	Long Put Profit/Loss	
12,000	450	0	450	480	300	180	630
12,100	450	0	450	480	200	280	730
12,200	450	0	450	480	100	380	830
12,300	450	0	450	480	0	480	930
12,400	450	0	450	480	0	480	930
12,500	450	0	450	480	0	480	930
12,600	450	100	350	480	0	480	830
12,700	450	200	250	480	0	480	730
12,800	450	300	150	480	0	480	630
12,900	450	400	50	480	0	480	530
13,000	450	500	50	480	0	480	430

By buying the March Call and Put contract at the strike price of Rs. 12,500 and Rs. 12,300 respectively, the trader gets a protection against price movement in either directions within a price

band in a highly volatile market. Thus, if the trade is not beneficial for the trader, he gets a maximum loss of Rs. 930 (net premium paid) and if the trade is beneficial for the trader, he gets an unlimited profit.

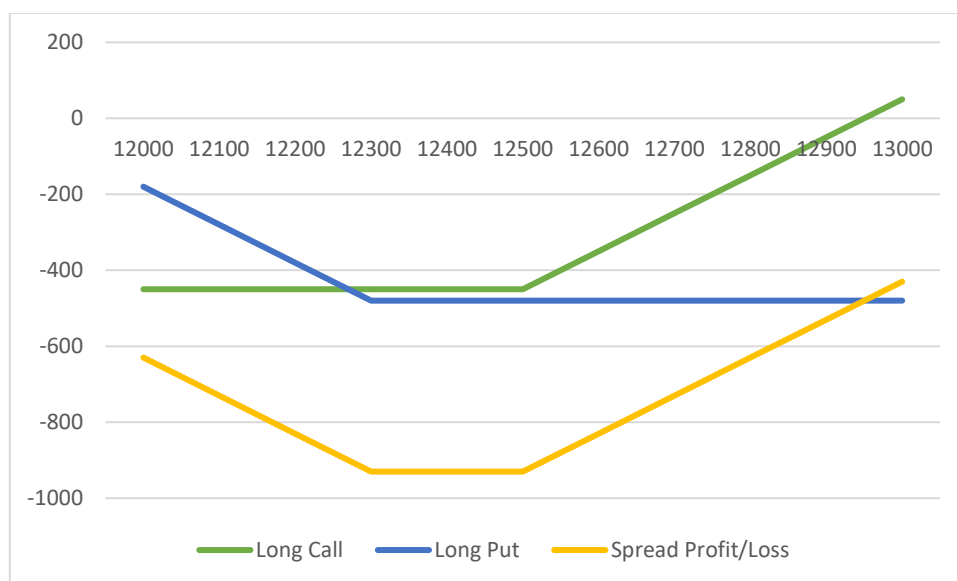


Figure 5.18 Long Strangle Strategy

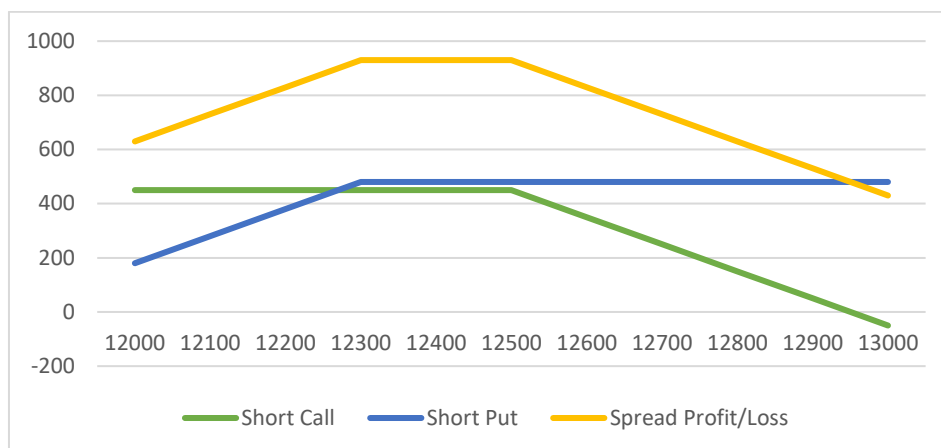
- b) **Short Strangle strategy** The trader sells a March Call and Put at strike price of Rs. 12,500 and Rs. 12,300 with premium receivable of Rs. 450 and Rs. 480 respectively. The Profit/Loss of the trader at various futures price condition upon expiry is given in the below table.

Table 5.23 Short Strangle Strategy

Futures Price at Expiry	Sell Rs. 12,500 Call			Sell Rs. 12,300 Put			Spread Profit/Loss
	Income on Call Premium	Profit/Loss at Expiry	Short call Profit/Loss	Income on Put Premium	Profit/Loss at Expiry	Short Put Profit/Loss	
12,000	450	0	450	480	300	180	630
12,100	450	0	450	480	200	280	730
12,200	450	0	450	480	100	380	830
12,300	450	0	450	480	0	480	930
12,400	450	0	450	480	0	480	930
12,500	450	0	450	480	0	480	930
12,600	450	100	350	480	0	480	830
12,700	450	200	250	480	0	480	730
12,800	450	300	150	480	0	480	630
12,900	450	400	50	480	0	480	530
13,000	450	500	50	480	0	480	430

By selling the March Call and Put contract at the strike price of Rs. 12,500 and Rs. 12,300 respectively, the trader gets an additional income from premium which reduces his risk in a less

trending market. Thus, if the trade is not beneficial for the trader, he gets a maximum profit of Rs. 930 (net premium received) and if the trade is beneficial for the trader, he gets an unlimited loss.



**Figure 5.19 Short Strangle Strategy**

### Strips and Straps

Strip strategy is used when the market is bearish but the volatility is bullish. This strategy involves buying two at the money Put options and one at the money Call options of the same underlying at the same strike price with the same expiry. This strategy earns more profit when the prices move downwards than the short straddle due to double the quantity of Put options involved.

Strap strategy is used when the market is bullish and the volatility is also bullish. This strategy involves buying two at the money Call options and one at the money Put options of the same underlying at the same strike price with the same expiry. This strategy earns more profit when the prices move upwards than the long straddle due to double the quantity of Call options involved.

### Example

A trader of Guarseed who takes advantage from the price changes through Guarseed Options predicts the market to be volatile. The various Strike price and premium for the call and put options of March contract is given below in Table 5.4.16 and the Guarseed futures in February is trading at Rs. 12,500.

**Table 5.24 Call and Put Options Premium**

March Contract		
Strike Price	Call Premium	Put Premium
12,000	500	450
12,100	490	460
12,200	480	470
12,300	470	480
12,400	460	490
12,500	450	500
12,600	440	510
12,700	430	520
12,800	420	530
12,900	410	540
13,000	400	550

## Solution

As the trader predicts the Guarseed prices to be volatile he may apply Strips and Straps strategies if he is able to predict the futures price movement of Guarseed. Strip strategy is applied when the futures price is bearish but its volatility is bullish and this strategy involves buying two at the money Put options and one at the money Call options of the same underlying at the same strike price with the same expiry. Strap strategy is applied when the futures price and its volatility is bullish and this strategy involves buying two at the money Call options and one at the money Put options of the same underlying at the same strike price with the same expiry. The trader's profit/loss from the strategies will be as follows

- a) **Strips Strategy** The trader buys one March Call and two Puts at strike price of Rs. 12,700 with premium payable of Rs. 430 and Rs. 520 respectively. The Profit/Loss of the trader at various futures price condition upon expiry is given in the below table.

**Table 5.25 Strips Strategy**

Futures price at expiry	Buy Rs. 12,700 call			Buy Rs. 12,700 put			Spread profit/loss
	Cost on call premium	Profit/loss at expiry	Long call profit/loss	Cost on put premium	Profit/loss at expiry	Long put profit/loss	
12,000	430	0	430	1040	1400	360	70
12,100	430	0	430	1040	1200	160	270
12,200	430	0	430	1040	1000	40	470
12,300	430	0	430	1040	800	240	670
12,400	430	0	430	1040	600	440	870
12,500	430	0	430	1040	400	640	1070
12,600	430	0	430	1040	200	840	1270
12,700	430	0	430	1040	0	1040	1470
12,800	430	100	330	1040	0	1040	1370
12,900	430	200	230	1040	0	1040	1270
13,000	430	300	130	1040	0	1040	1170

By buying one March Call and two Put contract at the strike price of Rs. 12,700, the trader gets a double protection against bearish price movement. Thus, if the trade is not beneficial for the trader, he gets a maximum loss of Rs. 1,470 (net premium paid) and if the trade is beneficial for the trader, he gets an unlimited profit.

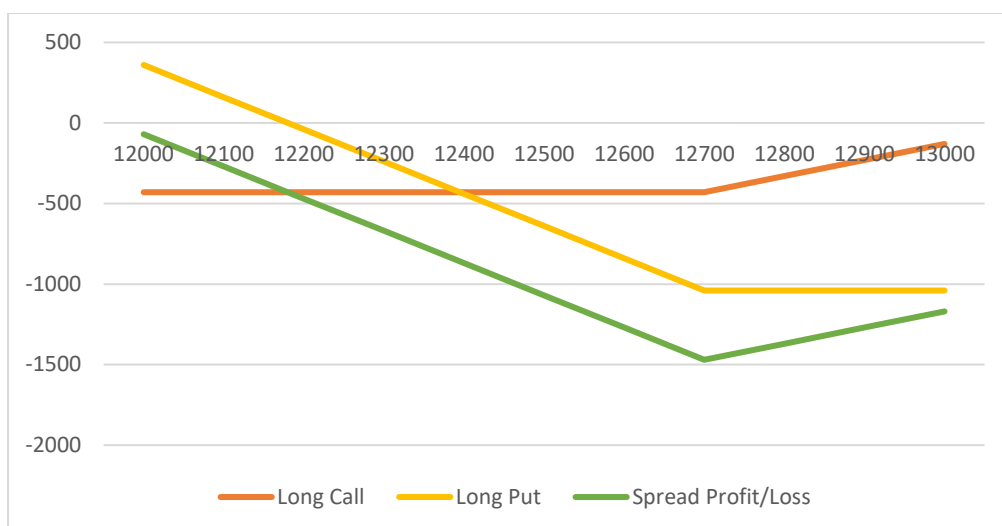


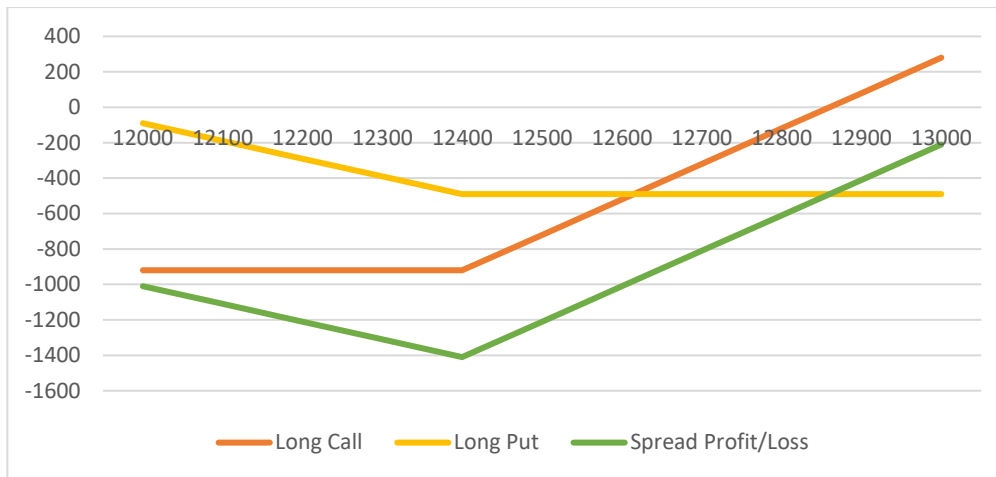
Figure 5.20 Strips Strategy

- b) **Straps Strategy** The trader buys two March Calls and one Put at strike price of Rs. 12,400 with premium payable of Rs. 460 and Rs. 490 respectively. The Profit/Loss of the trader at various futures price condition upon expiry is given in the below table.

Table 5.26 Straps Strategy

Futures price at expiry	Buy Rs. 12,400 call			Buy Rs. 12,400 put			Spread profit/loss
	Cost on call premium	Profit/loss at expiry	Long call profit/loss	Cost on put premium	Profit/loss at expiry	Long put profit/loss	
12,000	920	0	920	490	400	90	1010
12,100	920	0	920	490	300	190	1110
12,200	920	0	920	490	200	290	1210
12,300	920	0	920	490	100	390	1310
12,400	920	0	920	490	0	490	1410
12,500	920	200	720	490	0	490	1210
12,600	920	400	520	490	0	490	1010
12,700	920	600	320	490	0	490	810
12,800	920	800	120	490	0	490	610
12,900	920	1000	80	490	0	490	410
13,000	920	1200	280	490	0	490	210

By buying two March Calls and one Put contract at the strike price of Rs. 12,400, the trader gets a double protection against bullish price movement. Thus, if the trade is not beneficial for the trader, he gets a maximum loss of Rs. 1,410 (net premium paid) and if the trade is beneficial for the trader, he gets an unlimited profit.



**Figure 5.21 Straps Strategy**

### Other Strategies

Apart from the above strategies there are also few other options strategies used by the speculators at different market conditions such as

#### 1) Bullish Strategies

Additional options strategies used during bullish market condition are as follows

- Synthetic Call** This strategy involves buying a futures contract and buying its Put options that protect from unexpected fall. This strategy is used when the market is conservatively bullish. The risk of the trader is limited to the futures price of the underlying plus Put options premium minus Put options strike price, whereas, the return will be unlimited. The breakeven point will be the amount equal to the Futures price plus Put options premium.
- Covered Call with Futures** This strategy involves selling out of the money Call options for the existing long futures of the underlying. This strategy is used when the market of the existing long futures is moderately bullish. The risk of the trader is unlimited as he acts as the writer of the Call options and the return is limited to the extent of Call options strike price minus Futures price paid plus Call options premium received. The breakeven point will be the amount equal to the Futures price paid minus Call options premium received.
- Collar** This strategy involves buying a futures contract, buying its Put options to protect from downside risk and selling its Call options to reduce the cost of Put options. This strategy is used when the market is conservatively bullish. As this strategy provides a collar price, the risk and return of the trader are limited and the breakeven point will be equal to the amount of Futures price paid plus Put options premium paid minus Call options premium received.
- Long Combo** This strategy involves selling an out of the money Put options contract and buying an out of the money Call options contract and this strategy is used when the market is bullish. The risk and return of the trader as per this strategy will be unlimited and the breakeven point will be equal to the Call strike price plus a net premium of the Call and Put options.

## 2) Bearish Strategy

Additional options strategy used during bearish market condition are as follows

- **Protective Call/Synthetic Long Put**This strategy involves selling a futures and buying its Call options to protect from an unexpected rise in price. This strategy is used when the market is conservatively bearish. The risk of the trader is limited to the Call options strike price minus futures price of the underlying plus Call options premium, whereas, the return will be unlimited. The breakeven point will be equal to the amount of Futures price paid minus Call options premium paid.
- **Covered Put**This strategy involves selling a futures contract and selling its out of the money Put options to earn an additional income on options premium. This strategy is used when the market is moving from neutral condition to bearish condition. The risk of the trader is unlimited as the trader being an options writer, whereas, the return will be limited to the extent of Futures price minus Put options strike price plus Put options premium received. The breakeven point will be equal to the amount of Futures price paid plus Put options premium received.

## 3) Neutral Strategy

Additional options strategy used during neutral market condition are as follows

- **Long Call Butterfly**This strategy involves selling 2 at the money Call options, buying 1 in the money Call options and buying 1 out of the money Call options. This strategy is used when the market is neutral on underlying futures price direction and bearish on volatility. The risk of the trader will be limited to the net premium paid on Call options and the return will be limited to the difference of adjacent Call options strike prices minus net premium paid. This strategy will have two breakeven points with the Upper breakeven point equal to the Higher Call options strike price less net premium and the Lower breakeven point equal to the Lower Call options strike price plus net premium.
- **Short Call Butterfly**This strategy involves buying 2 at the money Call options, selling 1 in the money Call options and selling 1 out of the money Call options. This strategy is used when the market is neutral on underlying futures price direction and bullish on volatility. The risk of the trader will be limited to the difference of adjacent Call options strike prices minus the net premium received and the return will be limited to the net premium received on Call options. This strategy will also have two breakeven points with the Upper breakeven point equal to the Higher Call options strike price less net premium and the Lower breakeven point equal to the Lower Call options strike price plus net premium.
- **Long Call Condor**This strategy involves buying 1 in the money Call options with a lowest strike price, selling 1 in the money Call options with a little higher (lower) strike price, selling 1 out of the money Call options with little more higher (higher) strike price and buying 1 out of the money Call options with the highest strike price. This strategy is used when the market is range bound. As per this strategy, the risk of the trader will be limited to the difference of lower strike spread less difference of higher strike spread less net premium paid and the return will be limited with maximum profit earned when the underlying futures price lies between the lower



and higher strike prices. This strategy will also have two breakeven points with the Upper breakeven point equal to the Highest Call options strike price less net premium and the Lower breakeven point equal to the Lowest Call options strike price plus net premium.

- **Short Call Condor** This strategy involves selling 1 in the money Call options with the lowest strike price, buying 1 in the money Call options with a little higher (lower) strike price, buying 1 out of the money Call options with little more higher (higher) strike price and selling 1 out of the money Call options with the highest strike price. This strategy is used when the market breaks out the range bound and the direction is uncertain. As per this strategy, the risk of the trader will be limited with maximum loss earned when the underlying futures price lies between the lower and higher strike prices and the return will be limited with prices moving away from the lowest and highest strike prices. This strategy will also have two breakeven points with the Upper breakeven point equal to the Highest Call options strike price less net premium and the Lower breakeven point equal to the Lowest Call options strike price plus net premium.
- **Long Box or Conversion** This strategy involves buying a Call options contract and selling a Put options contract at the same lower strike price and selling a Call options contract and buying a Put options contract at the same higher strike price. This strategy is used to take advantage of temporary mispricing of options. The risk of the trader is nil, whereas, the return is fixed to the amount of difference between the higher and lower strike prices less net premium paid. There is no breakeven point in this strategy.
- **Short Box or Conversion** This strategy involves buying a Call options contract and selling a Put options contract at the same higher strike price and selling a Call options contract and buying a Put options contract at the same lower strike price. This strategy is used to take advantage of temporary mispricing of options. The risk of the trader is nil, whereas, the return is fixed to the amount of difference between the higher and lower strike prices less net premium received. There is no breakeven point in this strategy.

Speculators are another and important market participant other than hedgers who trade in options with the intention to make a profit without taking or giving delivery of the underlying futures. They are the participants who make the market liquid and helps the hedgers to trade easily. As their main intention is making a profit, speculators use various strategies based on the market conditions say bullish, bearish and neutral. The common strategies used by them are spreads, straddles, strangles, strips and straps. Spread strategies uses combination (buy and sell) of the same type of options say all Call options or all Put options that can be further classified as Horizontal spread if the same type of options contract for the same underlying futures are bought and sold at same strike price but for different time period and Vertical spread if same type of options contract of the same underlying futures are bought and sold for the same expiry but at different strike prices. Straddles are strategy overlooking the market volatility along with the market price condition where the same market position (long or short) is taken in both Call options and Put options of the same underlying futures at the same strike price for the same expiry. Strangles are strategies similar to the straddles strategy that considers market volatility along with market price condition where the same market position

(long or short) is taken in both Call options and Put options of the same underlying futures for the same expiry but at different strike prices. Strips and straps are strategies using same market position (long or short) of both Call and Put options of the same underlying futures at the same strike price (at the money contract) with the same expiry but an unequal number of contracts. There are also other strategies such as Synthetic Call, Covered Call with Futures, Collar and Long Combo used in Bullish market, Protective Call/Synthetic Long Put and Covered Put used in Bearish market and Long Call Butterfly, Short Call Butterfly, Long Call Condor, Short Call Condor, Long Box/Conversion and Short Box/Conversion used in Neutral market condition.

### To Do Activity

Each one can build up options strategy and discuss them in class pointing out how their strategy is effective and the reason for building that strategy.

### Case study

#### Case 1

Mr. Giridharan is a Guar seed producer who uses futures to hedge his price risk. Upon the introduction of Commodity Options in India, his broker advises him to trade in Options and points out reason of Options better than Futures. Giridharan has a 3hectares of land from which he expects 300 metric ton of Guar seed by the end of March 2018. Giridharan by now is confused to hedge using Futures or Options. The March Futures trades at Rs. 12,000 per quintal and the Options premium for Call options is Rs. 2,000 per quintal and Put options contract is Rs. 1,800 per quintal for the strike price of Rs. 12,000.

- What will be your suggestion to Mr. Giridharan in opting which instrument to trade?
- What will be his hedge position in using Options?
- What strategies can be applied by Giridharan if he opts for Options?

#### Case 2

Mr. Akbar is a speculator trading in commodity market over the decades. Recently he has started trading with commodity options from which he made losses. His friend suggested him to try some strategies to earn a profit or at least to avoid losses. As per that Akbar tries some strategy but fails and approaches a financial expert. If you are a financial expert suggest Akbar some strategies and his profit or loss position if he is trading with Guar Seed options whose market is bullish and the near month futures price is Rs. 12,000 per quintal. The details of strike prices and options premium are as follows

Expiry Month	Strike Price	Call Premium	Put Premium
February 2019	11,800	2200	1600
	12,000	2000	1800
	12,200	1800	2000
	12,400	1600	2200
March 2019	11,800	2500	1900
	12,000	2300	2100
	12,200	2100	2300
	12,400	1900	2500

## 5.5 Swaps Mechanics and Valuation

The previous sections covered in detail about the two major commodity derivative instruments used in Indian commodity market such as Futures and Options that are traded in commodity exchanges. The two other derivatives traded in Over the Counter market are Forwards and Swaps. Swaps are instruments that help in exchanging the risks of two persons instead of exchanging commodities. Though commodity swaps are not so common but are applied in some important commodities, thereby making Swaps an important instrument in the commodity market. This focuses on a briefing about commodity swaps, its mechanism, and valuation by covering topics such as;

- Commodity Swaps
- Modus Operandi of Swaps
- Mechanics of Interest Rate Swaps
- Valuation of Interest Rate Swaps
- Credit Risk in Swaps
- Swaption

### Commodity Swaps

Generally, Swaps is a contract between two parties to exchange their cash flow instead of an asset over a specified future period. Similarly, Commodity Swaps is a contract between two parties to exchange their cash flow that is based on an underlying commodity over a specified period. In commodity swaps, the traders do not exchange any commodity instead they use to hedge their price risk of it. Commodity Swaps is an over the counter market instrument that is in existence since the mid1970s across the globe. Based on the nature and size of the contract, the swaps are generally used by large companies or financial institutions and are not suitable for individual investors. The Commodity Swaps can be of two types such as

- (i). FixedFloating Swaps
- (ii). Commodity forint rest Swaps

#### (i). Fixed floating Swaps

The FixedFloating Swaps are similar to Interest Rate Swaps (that is elaborated in following topics of this ) wherein the floating price of the commodity (market price) is exchanged for a fixed price over an agreed period. The major difference between these two is that the floating leg of the Interest Rate Swaps is based on standard interest rates such as LIBOR (London InterBank Offer Rate) or MIBOR (Mumbai InterBank Offer Rate) whereas, the floating leg of the Commodity FixedFloating Swaps is based on commodity prices of leading commodity exchanges or commodity indices. In a FixedFloating swaps, a consumer of a commodity will agree to pay a fixed price for a commodity to a financial institution and in return will get a floating price (market price) for the commodity and on the other side, a producer of the commodity who wishes to fix his income will agree to get the fixed price for the commodity from the financial institution and pay the floating price for the commodity. This type of swaps is the most common and widely used commodity swaps. Many airline and rail companies enter into oil swaps to secure their cost over a period of time.

### Example

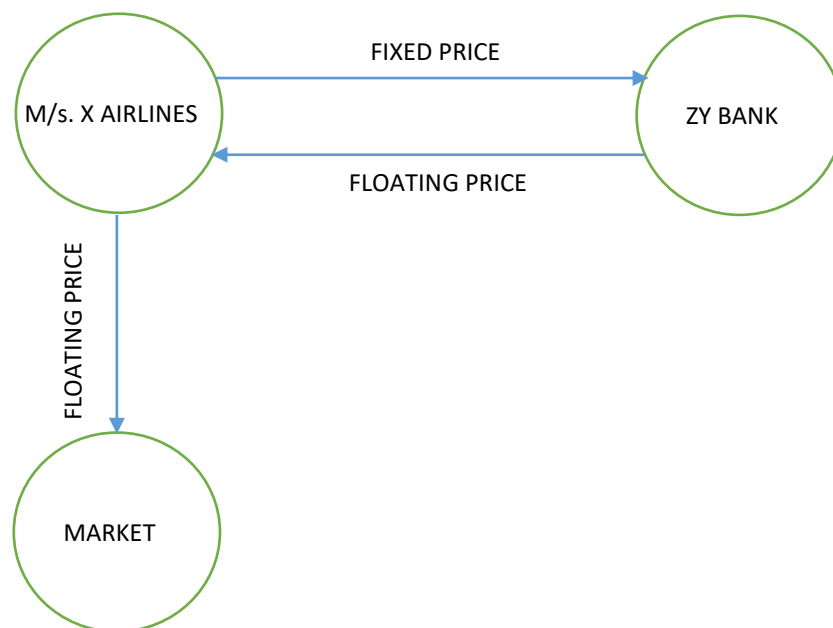
M/s. X Airlines is in need of 200 barrels of oil for its aircrafts each year for the next three years. On fearing the high fluctuations in the oil market the company wants to hedge its price risk by paying a

fixed price of Rs. 12,000 per barrel every year. The airline company pays Rs. 12,000 to a financial institution say ZY bank who in return gives a floating price.

**Solution**

**Table 5.27 Swaps Working for Buyer**

M/s. X Airlines	Fixed Price	Floating Price	Net Cash Flow
<b>1<sup>st</sup> Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= Rs. 0 (No Profit/Loss)
<b>2<sup>nd</sup> Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 12,500 = Rs. 25,00,000	= Rs. 1,00,000 (Profit)
<b>3<sup>rd</sup>Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 11,500 = Rs. 23,00,000	= Rs. 1,00,000 (Loss)



**Figure 5.21 Swaps Flowchart for Buyer**

The figure 5.5.1 explains the working of swaps of M/s. X Airlines. The M/s. X Airlines buys the oil it needs from the spot market and pays the floating price. To mitigate the floating price risk in the spot market, the M/s. X Airlines enters a swaps of paying a fixed price in exchange to floating price with ZY Bank.

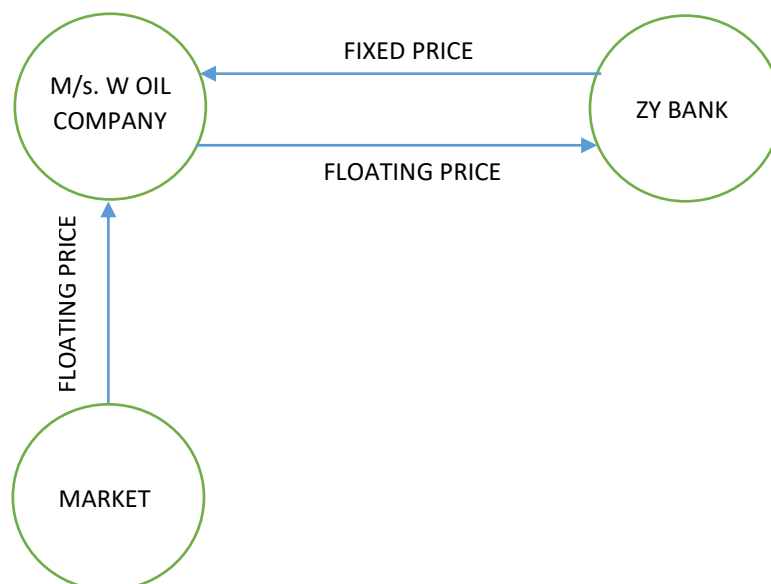
**Table 5.28 Buyer's Result on Swaps**

M/s. X Airlines	Fixed Price (A)	Floating Price (B)	Market Purchase Price (C)	Net Cost on Oil Purchase (D = A+BC)
<b>1<sup>st</sup> Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= Rs. 24,00,000
<b>2<sup>nd</sup> Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 12,500 = Rs. 25,00,000	= 200 barrels x Rs. 12,500 = Rs. 25,00,000	= Rs. 24,00,000
<b>3<sup>rd</sup> Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 11,500 = Rs. 23,00,000	= 200 barrels x Rs. 11,500 = Rs. 23,00,000	= Rs. 24,00,000

On the other hand, M/s. W Oil Company wants to fix up their income and agrees to receive a fixed price of Rs. 12,000 per barrel from ZY bank every year and pay floating price.

**Table 5.28 Swaps Working for Seller**

M/s. W Oil Company	Fixed Price	Floating Price	Net Cash Flow
<b>1<sup>st</sup> Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= Rs. 0 (No Profit/Loss)
<b>2<sup>nd</sup> Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 12,500 = Rs. 25,00,000	= Rs. 1,00,000 (Profit)
<b>3<sup>rd</sup>Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 11,500 = Rs. 23,00,000	= Rs. 1,00,000 (Loss)



**Figure 5.22 Swaps Flowchart for Seller**

The figure 5.22 explains the working of swaps of M/s. W Oil Company. The M/s. W Oil Company sells the oil it produces in the spot market and receives the floating price. But, to mitigate the floating price risk in the spot market, the M/s. W Oil Company enters a swaps of receiving a fixed price in exchange to floating price with ZY Bank.

**Table 5.29 Seller's Result on Swaps**

<b>M/s. W Oil Company</b>	<b>Fixed Price (A)</b>	<b>Floating Price (B)</b>	<b>Market Purchase Price (C)</b>	<b>Net Income from Oil sales (D = CB+A)</b>
<b>1<sup>st</sup> Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= Rs. 24,00,000
<b>2<sup>nd</sup> Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 12,500 = Rs. 25,00,000	= 200 barrels x Rs. 12,500 = Rs. 25,00,000	= Rs. 24,00,000
<b>3<sup>rd</sup> Year</b>	= 200 barrels x Rs. 12,000 = Rs. 24,00,000	= 200 barrels x Rs. 11,500 = Rs. 23,00,000	= 200 barrels x Rs. 11,500 = Rs. 23,00,000	= Rs. 24,00,000

#### **(ii). Commodity for interest Swaps**

The Commodity for interest Swaps are similar to Equity Swaps where the total return on that commodity is exchanged for some money market rate. This type of swaps is not commonly used.

The commodity swaps have some peculiar characters that are to be noted such as

1. The cost of hedging
2. The institutional structure of the particular commodity market
3. The liquidity of the underlying commodity market
4. Seasonality and its effects on the underlying commodity market
5. The variability of the futures bid/offer spread
6. Brokerage Fees
7. Credit risk

#### **Modus Operandi Of Swaps**

The swaps are over the counter market instruments, hence, are not regulated by any exchanges. The swaps contracts are also tailormade as per the needs and requirements of its parties. Thus, swaps have no hard and fast rule of operation. The parties who are willing to go for swaps frames a contract with the price or rate to be swapped, the time frame for swapping (i.e., over a period of some years) and the time interval of swaps (i.e., every three months or so) that are mutually agreed. Upon the stipulated time the parties execute their part of the contract until the accepted period of time.

#### **Mechanics of Interest Rate Swaps**

The interest rate swaps are the most commonly used swaps wherein two parties agree to exchange the fixed interest rate for floating interest rate and vice versa over a period of time. The fixed leg is determined by the need of the parties and the floating leg is determined by some rate above or

below the LIBOR or MIBOR. The net cash flow for the parties will be same but they go for swaps to hedge against risk.

### Notional Principal

Swaps generally involves exchange of cash flows upon assets with similar value and this value of asset upon which the cash flows are swapped is referred to as Notional Principal as this value just acts as a reference of the asset. For example, in an interest rate swaps, two parties exchange fixed interest rate of 7% for floating interest rate of MIBOR+1% and vice versa for an investment of Rs. 10,00,000. This Rs. 10,00,000 is referred to as notional principal as there is no exchange of this amount and the parties only exchange the interest amount of the principal amount of Rs. 10,00,000. Then a common asset value is fixed in par for both parties and the cash flows for this value is exchanged instead of cash flows for actual values of assets.

### Example

Mr. X invests Rs. 1,00,000 upon a fixed interest rate of 7% per annum for five years and Mr. Y invests Rs. 1,00,000 upon the floating interest rate of LIBOR+1% per annum for five years. Both urge for the opposite cash flows and go for an interest rate swaps.

### Solution

When LIBOR is 6%, Mr. X and Mr. Y pay and receives the same 7% resulting in no loss no gain position. If LIBOR is 7%, Mr. X would have paid 7% what he has received and got 8% incurring him a gain of 1% and Mr. Y would have earned only 7% and pay 8% resulting in a loss of 1%. When LIBOR 5%, Mr. X will receive only 6% and pay 7% incurring him a loss of 1% and Mr. Y has to pay only 6% and incur a gain of 1%.

### Valuation of Interest Rate Swaps

The value of swaps is based on many variables such as the notional amount, trade date, value date, end data, rate type, frequency, time basis, and market data. The rate of fixed leg is determined so as to equalize the value to 0 on the inception date of a swap. In case the value of the swaps is not zero on the inception date, the party with positive value will pay cash difference to the counterparty making the swaps value to zero.

To computing the present value of an Interest rate swaps, each cash flows are first discounted and summed under fixed and floating leg separately. Then, the difference between the discounted cash flow received and discounted cash flow paid gives the value of swaps (i.e.,) if the trader receives fixed rate and pays floating rate, the present value of interest rate swaps will be the present value of fixed leg cash flows minus present value of floating leg cash flows. By equation this can be given as;

$$P_{IRS} = P_{Fixed}P_{Floating} \quad (\text{OR}) \quad P_{IRS} = P_{Floating}P_{Fixed}$$

Where,  $P_{IRS}$  is the Present value of Interest Rate Swaps (IRS),  $P_{Fixed}$  is the summated discounted cash flows of fixed leg and  $P_{Floating}$  is the summated discounted cash flows of floating leg.

The can be represented in the equation as;

$$P_{Fixed} = NR \sum_{i=1}^{n_i} d_i v_i$$

$$P_{Floating} = N \sum_{j=1}^{n_j} R_j d_j v_j$$

Where, N is the notional amount, R is the fixed interest rate,  $R_j$  is the floating interest rate,  $n_i$  and  $n_j$  are the number of payments,  $d_i$  and  $d_j$  are the fraction of accrual time period of  $i^{\text{th}}$  period and  $j^{\text{th}}$  period respectively and  $v_i$  and  $v_j$  are the discount factor of  $i^{\text{th}}$  period and  $j^{\text{th}}$  period respectively.

The interest rate swaps discount rates can be valued using two yield curves such as; the zero-coupon yield curve and the forward rate curve.

### Credit Risk in Swaps

Swaps are an over the counter market instrument and hence, always has a fear of counterparty default. As swaps generally deal with higher value and over a longer period, any risk will affect its parties very badly. One of the important risks prevailing in swaps is the credit risk which arises due to the default of payment from the counterparty. Credit risk mostly arises when one party is continuously getting the loss out of swaps threatening the other party getting a positive outcome. If the swaps are collateralized, then the credit risk will be lesser whereas, in uncollateralized swaps, the credit risk will be much higher, but eradicating the credit risk is impossible in swaps. Any party dealing with swaps must be preplanned about the credit risk, failure of which will lead to a huge loss.

### Swaption

Swaption is nothing but an options contract with swaps as its underlying asset. The Swaption gives its holder the right but not the obligation to enter an underlying swaps contract. The Swaption is also an over the counter market instrument mainly dealt by large corporations, banks, financial institutions, and hedge funds. Though the options can be traded on variety of swaps, the Swaption generally refers to options on Interest rate swaps. The Swaption can be of two types similar to Call options and Put options such as;

- (i). Payer swaption
- (ii). Receiver swaption

#### (i). Payer Swaption

The payer swaption provides its holder the right to enter into a swap where the trader has to pay the fixed leg and receive the floating leg.

#### (ii). Receiver Swaption

The receiver swaption provides its holder the right to enter into a swap where the trader will receive the fixed leg and pay the floating leg.

The Swaption requires some basic information to be accepted by both its parties such as;

- The premium to be paid on the Swaption
- Length of the options contract
- Terms of swaps such as Notional Amount, Fixed leg rate and floating leg rate and the frequency of swaps.



The Swaption is generally exercised under three major styles such as;

- **European Style** Where, the holder of the Swaption is allowed to enter into a swap only on the expiry date of the Swaption contract or the swaps start date. This is the most widely used style.
- **American Style** Where, the holder of the Swaption is allowed to enter into a swap on any day on or before the expiry of the Swaption contract.
- **Bermudan Style** Where, the holder of the Swaption is allowed to enter into a swap on multiple specified dates before expiry.

Determining the value of a Swaption is a complicated one as the underlying Swaps gets its value from a forward contract. Quantitative analysts have constructed a complex Latticebased term structure and short rate model to value a Swaption. In practice, many traders use Black76 model to value the European style Swaption and the American and Bermudan style Swaptions are valued through Latticebased term structure.

### Summary

Swaps is a contract between two parties to exchange their cash flow upon an asset instead of a direct asset over a specified period of time. The Commodity swaps is swaps where the underlying asset is a commodity upon whose price the swap contract is made. The commodity swaps are of two types namely, FixedFloatingSwaps and Commodityforinterest Swaps. The Fixedfloating swaps are similar to Interestrate swaps where some fixed price for the commodity is exchanged for floating or market price and the Commodityforinterest swaps are similar to Equity swaps where the total return on the commodity is exchanged for some money market rate. The value of swaps is determined as the difference between the summated present value of cash flows of receiving leg and the summated present value of cash flows of paying leg. The cash flows are discounted using the zero-coupon yield curve and forward rate curve. But the value of both the fixed and floating legs of swaps are to be zero on inception. As a financial instrument swaps also possess risks and the most important among them is the credit risk which arises due to the default of counterparty. Collateralizing the swaps helps to reduce the credit risk. The swaps can also be placed as an underlying for an options contract which is termed as Swaption. Swaption has all features of an options contract but is over the counter market traded instrument where the traders agree to enter into a swaps contract upon expiry of the options contract for which they pay a premium. The Swaption can be classified into two types; the payer swaption and receiver swaption. The trader of a payer swaption, pays the fixed leg and receives floating leg and the trader of a receiver swaption, receives the fixed leg and pays the floating leg. All the swaps are dealt with by large corporates or financial institutions who exchange larger cash flows over a period of time and are not suitable for individual investors.

### Model Questions

1. Brief about the Options premium valuation and Options Moneyiness.
2. What are the various options strategies used by Speculators?
3. Explain the spread strategies with examples.
4. Explain about Commodity Swaps.
5. What is interest rate swap?
6. Explain about Swaption.

**To Do Activity**

The class can split up into groups and collect cases about commodity swaps in India. Make an analysis of swaps benefits and risks.

**Case Study**

Jet Airlines is facing high competition in fixing up Flight charges and wants to reduce its cost so as to earn a profit. The major cost incurred by Jet Airlines is the fuel cost for the flights. The Jet fuel prices are rising in the global market which threatens the Jet Airlines Company even more. As there are no Jet fuel contracts trading in India, the company decides to go for an over the counter market instrument such as Swaps to hedge its risk over a longer period. The credit risks also fear the company. So, the company goes for an opinion from a financial expert.

- a) If you are the Expert will you advise the Jet Airlines to go for swaps?
- b) Point out the pros and cons of entering swaps?
- c) Is there any alternative for the company to hedge its risk if so explain it.

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## **Editors' Profile**

### **Dr W G Prasanna Kumar**

Dr. W. G. Prasanna Kumar, PhD in Education with basic degree in Social Work and Master's Degrees in Sociology, Public Administration and Political Science has professional education in Environmental Economics, Public Relations, Communication and Training and Development. Presently Chairman, Mahatma Gandhi National Council of Rural Education (MGNCRE) under the Ministry of Human Resource Development, in Government of India strives to promote resilient rural India through Higher Education interventions. The national initiative of reviving Mahatma Gandhi's ideas of Nai Talim, spearheaded by Dr. W G Prasanna Kumar, has met unprecedented success at both national and state levels. The primary objective of this initiative is to promote Gandhiji's ideas on Experiential Learning, Nai Talim, Work Education and Community Engagement, and mainstreaming them in School Education and Teacher Education Curriculum & Pedagogy. As Professor and Head Centre for Climate Education and Disaster Management in Dr MCR HRD Institute, conducted several capacity building and action research programmes in climate education, disaster management and crowd management. He has handled many regional, national and international environmental education programmes and events including UN CoP11 to Convention on Biological Diversity and Media Information Management on Environmental Issues.

He was Director in National Green Corps in the State Government for over 11 years and Senior Social Scientist in State Pollution Control Board for 6 years. Conducted various curriculum and non-curriculum related training programmes in environmental education. He was a Resource Person for AP Judicial Academy, AP Police Academy, AP Forest Academy, EPTRI, Commissionerate of Higher Education and Intermediate Education, State Council for Educational Research and Training and National Council for Educational Research and Training New Delhi, CCRT, Bharathiya Vidyapeet University Pune, CPR Environmental Education Centre Chennai and Centre for Environment Education Ahmedabad. Dr W G Prasanna Kumar was trained in Community Consultation for Developmental Projects in EPA Victoria Australia in 1997 trained as State Chief Information Officer by IIM Ahmedabad and MCRHRDI Government of Andhra Pradesh in 2004 and trained in Environmental Education and Waste Management Technique by JICA, Japan in 2011.

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Dr K N Rekha, is a PhD Graduate from IIT Madras. She has 13 years of experience in training and education Industry. She works at Mahatma Gandhi National Council of Rural Education (MGNCRE), Hyderabad as Senior Faculty. She is involved in curriculum development on Rural Management and Waste Management. Prior to this, she worked as a researcher at Indian School of Business, Hyderabad, a short stint at Centre for Organisation Development (COD), Hyderabad. She has Co-authored a book on "Introduction to Mentoring", book chapters, Peer reviewed research papers, book reviews, Casestudy, and caselets in the area of HR/OB. She also presented papers in various national and international conferences. Her research areas include Mentoring, Leadership, Change Management, and Coaching. She was also invited as a guest speaker at prominent institutions like IIT Hyderabad.

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