



T.Y.B.COM
SEMESTER - VI (CBCS)
(ACCOUNTING AND FINANCE)

PROJECT WORKS

SUBJECT CODE UA_FFSVI.8

Prof. Ravindra Kulkarni
Vice Chancellor
University of Mumbai, Mumbai

Prin. (Dr.) Ajay Bhamare
Pro Vice-Chancellor,
University of Mumbai

Prof. (Dr.) Santosh Rathod
In charge Director,
CDOE, University of Mumbai

Programme Co-ordinator : Dr. Rajashri Pandit, Ph.D.
Assistant Professor (Economics)
CDOE, University of Mumbai,
Vidyanagari, Santacruz (E), Mumbai.

Course Co-ordinator : Mr. Vinayak Vijay Joshi,
Assistant Professor (Accountancy),
Department of Commerce,
CDOE, University of Mumbai,
Vidyanagari, Santacruz (E), Mumbai.

Editor : Mr. Ganesh Ghadigaonkar
Assistant Professor
Guru Nanak Khalsa College of Art, Science and Commerce,
Matunga, Mumbai

Course Writers : Dr. Tushar Balkrishna Raut
Assistant Professor
St. Gonsalo Garcia College of Arts &
Commerce, Vasai (West)

: Mr. Amit Zogedkar
Assistant Professor
Chetna College of Commerce,
Bandra, Mumbai

: Mr. Kustubh Sawant
Assistant Professor
Chetna College of Commerce,
Bandra, Mumbai

June 2024, Print - 1

Published by : Director,
Centre For Distance and Online Education,
University of Mumbai,
Vidyanagari, Mumbai - 400 098.

DTP composed and Printed by: Mumbai University Press

CONTENTS

Unit No.	Title	Page No.
1	Derivatives - Futures	1
2	Derivatives Options	28
3	Investment Management	72
4	Securities Analysis	85
5	Fundamental Analysis.....	98

T.Y.B.COM
SEMESTER - VI (CBCS)
(Accounting and Finance)

PROJECT WORKS

SYLLABUS

1. Derivatives – Futures

Derivatives – Need and Importance, Major Players in Derivative Markets, Features of Forward Contracts, Features of Future Contract, Forward V/s Future, Theoretical Future Price, Pricing Index Futures, Initial Margin and Maintenance Margin, Marking to Market and Variation Margin.

2. Derivatives – Options

Options- Long Call, Short Call, Long Put, Short Put, Options V/s Futures, Writer of an Option, At the Money, In the Money and Out of The Money Options. Intrinsic and Time Value, Option Spreads and Strategies, Put Call Parity Theorem.

3. Investment Management

Investment management Objective, investment opportunities, and philosophy of individual & institutional investors

Fundamental analysis; Concept & significance of economic analysis Industry analysis; introduction, need for industry analysis, alternative classification of Industry Industry lifecycle analysis, economic factors & industry analysis, SWOT analysis for industries

4. Securities Analysis

Meaning of securities, Characteristics and Structure of Securities Market, Capital Market, New Issue Market, Dematerialization, Equity Research and Valuation, Sources of Financial Information, Industry Analysis, Company Analysis, Valuation of Equity Shares

5. Fundamental Analysis & Technical Analysis

Economy Analysis – Meaning, Framework, Economic Analysis, Forecasting, Barometric or Indicator Approach, Econometric Model Building and Opportunistic Model Building.

Industry Analysis – Concept of Analysis, Industry Life Cycle, Industry Characteristics

Company Analysis – Financial Statements, Analysis of Financial Statements, (Practical questions on Debt equity ratios, total debt ratio, proprietary ratios, interest coverage ratio, Profitability ratios related to sales, investment and equity shares Efficiency or Activity Ratios) and Assessment of risk (Leverages)

Dow Theory Meaning and Principles of Technical Analysis, Price Chart, Line Chart, Bar Chart, Japanese Candlestick Chart, Trends and Trend Reversals, Chart Patterns, Support and Resistance, Reversal Patterns, Continuation Patterns and Elliot Wave Theory Mathematical Indicators – Calculation of Moving Averages (Simple and Exponential Moving Average), Oscillators and Relative Strength Index Market Indicators Fundamental Analysis V/s Technical Analysis

DERIVATIVES - FUTURES

Unit Structure:

- 1.0 Learning Objectives
- 1.1 What Are Derivatives Instruments?
- 1.2 Derivatives – Futures
- 1.3 Forward V/S Future
- 1.4 Theoretical Future Price
- 1.5 Pricing Index Futures
- 1.6 Initial Margin and Maintenance Margin
- 1.7 Marking To Market and Variation Margin

1.0 LEARNING OBJECTIVES

After reading this chapter, learner will be able to:

- Comprehend the need for derivatives in financial markets.
- Recognize the importance of derivatives in risk management, speculation, and price discovery.
- Identify the key participants in derivative markets, such as hedgers, speculators, arbitrageurs, and market makers.
- Analyze the features of forward contracts, including customization, settlement, counterparty risk, price determination, and delivery mechanisms.
- Learn the methodology and formula for calculating theoretical future prices of assets.
- Understand the factors that influence the pricing of index futures contracts.
- Understand the concepts of initial margin and maintenance margin in futures trading.
- Learn about marking to market and variation margin mechanisms for margin management

1.1 WHAT ARE DERIVATIVES INSTRUMENTS?

Derivatives are financial instruments whose value is derived from an underlying asset, index, or other financial instrument. They are called "derivatives" because their value is based on (or derived from) the price of the underlying asset. Derivatives can be based on a variety of underlying assets, such as stocks, bonds, commodities, currencies, interest rates, and market indices.

1.1.1 Types of Derivatives

1. Futures Contracts:

- Agreements to buy or sell an asset at a predetermined price on a specified future date.
- Traded on organized exchanges and are standardized.

2. Options Contracts:

- Options give the holder the right, but not the obligation, to buy (call option) or sell (put option) an asset at a specified price on or before a certain date.
- Options can be traded on exchanges or over-the-counter.

3. Forward Contracts:

- Agreements to buy or sell an asset at a predetermined price on a specified future date.
- Similar to futures, but forward contracts are customizable and traded over-the-counter.

4. Swaps:

- Agreements to exchange cash flows or financial instruments between parties.
- Common types of swaps include interest rate swaps and currency swaps.

1.1.2 Key Uses of Derivatives

- **Hedging:** Derivatives allow individuals and institutions to manage and mitigate risk in various markets by hedging against price fluctuations in underlying assets.
- **Speculation:** Traders use derivatives to speculate on future price movements in underlying assets, aiming to profit from price changes.
- **Arbitrage:** Derivatives can be used to exploit price discrepancies between related markets or contracts for profit.
- **Leverage:** Derivatives provide opportunities to control large positions with a relatively small amount of capital (e.g., margin in futures contracts).

1.1.3 Importance of Derivatives

- **Risk Management:** Derivatives help market participants manage risks associated with price volatility in various markets.
- **Price Discovery:** Derivatives markets contribute to efficient price discovery by reflecting the views and expectations of market participants.

- **Liquidity:** Derivatives markets often have high liquidity, allowing for easy entry and exit from positions.
- **Investment Diversification:** Derivatives provide access to a wide range of asset classes beyond traditional investments, enabling investors to diversify portfolios.

1.1.4 Risks of Derivatives

- **Counterparty Risk:** The risk that the other party in a derivative contract may default on their obligations.
- **Market Risk:** The risk of loss due to changes in the market value of the underlying asset.
- **Leverage Risk:** The use of leverage can amplify both gains and losses, leading to potentially high levels of risk.
- **Complexity:** Some derivatives can be complex and may require a high level of understanding to use effectively and manage associated risks.

Derivatives are a crucial part of modern financial markets, enabling risk management, price discovery, and investment opportunities. However, they also carry risks that market participants must understand and manage.

1.2 DERIVATIVES – FUTURES

Futures contracts are standardized agreements to buy or sell a specific quantity of an underlying asset at a predetermined price on a specified future date. These contracts are traded on organized exchanges and are commonly used for commodities, financial instruments, and stock indices.

1.2.1 Needs and importance:

Futures contracts play a crucial role in financial markets due to their need and importance in various aspects of trading, investing, and risk management. Here are some key reasons why futures are significant:

1. Risk Management and Hedging:

- **Hedging:** Futures contracts allow market participants to hedge against price fluctuations in the underlying asset, such as commodities, currencies, or interest rates.
- **Price Risk Protection:** Companies can protect their profit margins and cash flows from adverse price movements in raw materials or other inputs.

2. Price Discovery:

- Futures markets provide a platform for continuous trading, leading to the efficient discovery of prices for underlying assets.
- The prices reflect the collective views and expectations of market participants regarding future price movements.

3. Leverage:

- High Leverage: Futures allow traders to control large positions with a relatively small amount of capital (initial margin).
- This leverage can amplify both gains and losses, providing opportunities for high returns.

4. Market Liquidity:

- Futures markets tend to be liquid, allowing for easy entry and exit from positions.
- High liquidity reduces trading costs and spreads, making futures an attractive option for traders and investors.

5. Investment Diversification:

- Futures provide investors with access to a wide range of asset classes (e.g., commodities, financial instruments, indices) beyond traditional investments.
- They offer an opportunity to diversify investment portfolios.

6. Speculation and Arbitrage:

- Speculation: Traders use futures to speculate on price movements and profit from these movements.
- Arbitrage: Traders can exploit price discrepancies between related markets or contracts for profit.

7. Cash Flow Management:

- Futures can be used to lock in prices and manage cash flows more effectively.
- For businesses, futures can stabilize costs and revenues, leading to more predictable financial planning.

8. Global Market Participation:

- Futures markets are accessible to participants from around the world, contributing to the globalization of financial markets.

Overall, futures contracts offer a range of benefits, including efficient risk management, price discovery, and opportunities for speculation and investment diversification. They are an essential part of modern financial markets and play a vital role in facilitating trade and economic activity.

1.2.2 Major Players in Derivative Markets

In derivative markets, there are several major players who engage in trading, investment, and risk management activities. These participants play a crucial role in the functioning and liquidity of the markets. Here are the major players in derivative markets:

1. Hedgers:

- Hedgers use derivatives to protect against the risk of adverse price movements in the underlying asset.
- For example, a producer of commodities might use futures contracts to lock in prices and hedge against falling market prices.

2. Speculators:

- Speculators aim to profit from price movements in derivatives markets.
- They take on risk in the hopes of earning returns through price changes in the underlying asset.

3. Arbitrageurs:

- Arbitrageurs seek to profit from price discrepancies between related markets or derivative contracts.
- They play a crucial role in maintaining market efficiency by ensuring that prices remain in line across different markets.

4. Market Makers:

- Market makers provide liquidity to the market by being willing to buy and sell derivative contracts.
- They help facilitate smooth trading and can help stabilize markets by providing continuous bid-ask quotes.

5. Institutional Investors:

- Institutional investors such as mutual funds, pension funds, and insurance companies use derivatives for risk management and investment purposes.
- They may also use derivatives to gain exposure to specific asset classes or markets.

6. Banks and Financial Institutions:

- Banks and other financial institutions are significant participants in derivative markets.
- They provide a range of services, including acting as intermediaries, providing liquidity, and offering derivative products to clients.

7. Corporations:

- Corporations use derivatives to manage risks associated with their operations, such as currency risk, interest rate risk, and commodity price risk.
- For example, a multinational corporation may use currency forwards or swaps to hedge against exchange rate fluctuations.

8. Clearinghouses:

- Clearinghouses play a critical role in derivative markets by acting as intermediaries between buyers and sellers.
- They guarantee the performance of derivative contracts, reducing counterparty risk for market participants.

9. Regulators:

- Regulators oversee derivative markets to ensure fair trading practices, transparency, and risk management.
- They establish rules and standards to protect market participants and maintain market stability.

These major players contribute to the liquidity, efficiency, and overall functioning of derivative markets. They each have distinct roles and objectives, and their interactions help facilitate the smooth operation of these complex financial markets.

1.2.3 Key features of Forward Contracts

Forward contracts are private agreements between two parties to buy or sell an asset at a predetermined price on a specified future date. These contracts are often used for risk management and hedging purposes in financial markets. Here are the key features of forward contracts:

1. Customization:

- Forward contracts are customizable agreements tailored to the specific needs of the parties involved.
- The terms of the contract, such as the quantity, quality, delivery date, and price of the underlying asset, can be negotiated by the parties.

2. Private, Over-the-Counter (OTC) Trading:

- Forward contracts are traded over-the-counter, meaning they are not traded on organized exchanges.
- The contracts are negotiated directly between the two parties, which allows for more flexibility in terms of contract specifications.

3. Settlement:

- Forward contracts are usually settled at the end of the contract period, either through physical delivery of the underlying asset or cash settlement.
- Settlement terms are specified in the contract and agreed upon by the parties.

4. Counterparty Risk:

- Since forward contracts are private agreements, there is a risk that one of the parties may default on the contract.
- This risk is known as counterparty risk and is a key consideration when entering into a forward contract.

5. No Marking to Market:

- Unlike futures contracts, forward contracts are not marked to market daily.
- Gains and losses are realized only at the end of the contract period, which can lead to larger potential losses if the market moves significantly against one party.

6. No Initial Margin:

- Forward contracts do not require an initial margin to be posted, unlike futures contracts.
- However, the parties may agree to collateral or other forms of security to mitigate counterparty risk.

7. Long-Term Contracts:

- Forward contracts can be used for longer-term agreements, making them suitable for strategic hedging over an extended period.

8. Non-Standardized:

- Forward contracts are non-standardized, meaning each contract can have unique terms and conditions.
- This flexibility can be advantageous for parties looking to meet specific risk management or investment objectives.

Overall, forward contracts are valuable tools for managing risk and securing future prices, especially for businesses and institutions dealing with commodities, currencies, or other assets. However, the private nature of the contracts and the associated counterparty risk require careful consideration and risk management.

1.2.4 Key features of Futures Contracts

1. **Standardization:** Futures contracts are standardized in terms of the quantity and quality of the underlying asset, the delivery date, and other contract specifications. This standardization ensures consistency and facilitates trading on exchanges.
2. **Exchange-Traded:** Futures contracts are traded on regulated exchanges, which provide a centralized platform for buyers and sellers to interact and execute trades.
3. **Leverage:** Futures contracts allow traders to control large positions with a relatively small amount of capital, known as the initial margin. This leverage can magnify both potential gains and losses.
4. **Marking to Market:** Positions in futures contracts are revalued daily based on the market price of the underlying asset. Gains and losses are settled each day through the trader's margin account.
5. **Margin Requirements:** Traders must maintain a certain level of funds in their margin account to cover potential losses. If the account balance falls below the maintenance margin, the trader may receive a margin call to replenish the account.
6. **Settlement:** Futures contracts can be settled in two ways:
 - **Physical Delivery:** The underlying asset is delivered to the buyer at the end of the contract term.
 - **Cash Settlement:** The difference between the contract price and the market price of the underlying asset is settled in cash.
7. **Speculation and Hedging:** Futures contracts are used by traders to speculate on the price movements of the underlying asset, aiming to

profit from these movements. They are also used by hedgers to protect against potential losses in the spot market.

8. **Liquidity:** Futures markets are typically liquid, meaning that traders can easily enter and exit positions without significant impact on the market price.

Overall, futures contracts provide a way for market participants to hedge against risk, speculate on price movements, and achieve price discovery in various markets.

1.3 FORWARD V/S FUTURE

Feature	Forward Contracts	Futures Contracts
1. Customization	Customizable agreements tailored to the parties' needs	Standardized contracts with fixed terms
2. Trading Venue	Traded over-the-counter (OTC)	Traded on organized exchanges
3. Settlement	Typically settled at the end of the contract period	Marked to market daily, with daily settlement of gains and losses
4. Counterparty Risk	Higher counterparty risk due to private nature of the contract	Lower counterparty risk due to clearing house guarantee
5. Initial Margin	No initial margin requirement	Initial margin required to enter a position
6. Maintenance Margin	Not applicable	Maintenance margin required to maintain positions
7. Liquidity	Generally, less liquid due to private negotiation between parties	Typically, highly liquid due to exchange trading
8. Standardization	Non-standardized terms, allowing for flexibility	Standardized terms, facilitating ease of trade
9. Contract Duration	Often longer-term, depending on the parties' needs	Typically, shorter-term contracts
10. Regulation	Subject to less regulation	Subject to regulatory oversight on exchanges
11. Settlement Method	Usually, physical delivery or cash settlement	Usually cash settlement or physical delivery
12. Price Discovery	Limited due to private nature of the contracts	More transparent due to exchange trading

1.4 THEORETICAL FUTURE PRICE

Basis is basically the difference between the expected future price and the current price of something. Imagine you can buy a rice today (spot price) for ₹ 50.

In theory, if there are no storage costs and everyone expects rice prices to stay the same, a futures contract for delivery in 3 months should also cost \$ 50 (theoretical fair value). Here, the basis would be ₹ 0 (50 spot price - 50 futures price).

But in reality, there might be costs to store corn for 3 months. So, the futures contract might be slightly more expensive, say ₹ 5.20 (reflecting those storage costs). In this case, the basis would be ₹ -0.20 (₹ 5.20 futures price - ₹ 5 spot price). A negative basis means the futures are trading at a discount to the expected future price (due to storage costs).

Illustration 01: Suppose the current spot price of gold is ₹ 50,000 per 10 grams, and the futures price for delivery in three months is ₹ 51,000 per 10 grams.

Solution 01:

Basis = Spot Price- Futures Price

We can calculate the basis:

Basis = ₹ 50,000 - ₹ 51,000

Basis = - ₹ 1,000

Illustration 02:

If the spot price on 1st October 2023 is ₹ 62.83, calculate the basis for the following futures price

Settlement Month	Oct-23	Nov-23	Dec-23
Future Price	60.43	61.26	64.58

Solution 02:

Basis = Spot Price- Futures Price

Settlement Month	Oct-23	Nov-23	Dec-23
Future Price	₹ 2.40	₹ 1.57	₹ (1.75)

Investors use theoretical future prices and basis to make investment decisions, such as determining whether a stock is undervalued or overvalued relative to its potential future performance. However, it's important to note that these estimates are inherently uncertain and subject to change based on new information and market conditions.

The theoretical future price, also known as the fair value of a futures contract, can be calculated using the spot price of the underlying asset and various factors such as the cost of carry (e.g., interest rates, storage costs), dividends or yields, and the time to expiration. The formula used to calculate the theoretical future price varies depending on the type of underlying asset (e.g., financial instruments, commodities).

1.4.1 Key Components of Theoretical Future Price

1. **Spot Price:** The current market price of the underlying asset.
2. **Cost of Carry:** The cost of holding the underlying asset until the contract's expiration. This includes:
 - **Financing Costs:** Interest rates paid on borrowed funds to finance the purchase of the underlying asset.
 - **Storage Costs:** Costs associated with storing the underlying asset (e.g., commodities).
 - **Convenience Yield:** The non-monetary benefits of holding the asset.
3. **Expected Dividends or Yields:** Any expected income (e.g., dividends for stocks or interest for bonds) from holding the underlying asset until the contract's expiration.
4. **Time to Expiration:** The time remaining until the futures contract expires.

$$F = S + C$$

Where:

F = Future Price

S = Spot Price

C = Cost of Carry

Illustration 03:

Spot price of 10 gm Gold is ₹ 49,000. Locker storage cost is ₹ 500, insurance is ₹ 300 and Interest is ₹ 200. You are required to calculate the fair price of 3 months Futures contract.

Solution 03:

Spot Price (S) = 49,000

Cost of carry (C) = Storage cost + Insurance + Interest cost = 500 + 300 + 200 = 1,000

Futures Price (F) = Spot Price (S) + Cost of carry (C)

F = 49,000 + 1,000

F = 50,000

Thus, the Theoretical Futures Price (Fair Price) is Rs. 50,000.

Illustration 04:

Spot price of 10 gm Gold is ₹ 49,000. Locker storage cost is ₹ 500, insurance is ₹ 300 and Interest rate is 10%. You are required to calculate the fair price of 3 months Futures contract.

Solution 04:

Given: Spot Price (S) = ₹ 49,000

Storage cost = ₹ 500; Insurance Cost = ₹ 300 and

Interest Cost = 10% (Spot Price + Storage cost + Insurance cost). Futures price (F) = ?

Futures Price = Spot Price + Storage cost + Insurance cost + Interest cost

F = 49,000 + 500 + 300 + [10% * (49,000 + 500 + 300) * 3 / 12]

F = 49,800 + (10% (49,800) * 3/12)

F = 49,800 + (10% (12,450))

F = 49,800 + 1,245

F = 51,045

Further when the cost of carry is given as a percentage, the formula to be used is

$$F = S \times (1 + r)^n$$

where –

F = Futures Price

S = Spot Price

r refers to the rate of risk-free return.

The rate that can be earned all year long in a perfect market is known as the risk-free rate. A risk-free rate, which is often reported annually, can be derived from the interest rate on a Treasury Bill. It must therefore be modified accordingly for the remaining days before expiration. The

assessment of the minimal return obtained if the investment was made on the futures date serves as the justification for the adjustment for risk-free interest returns. It is, therefore, the opportunity cost of making security investments now as opposed to later. The time value of money is factored into the futures price.

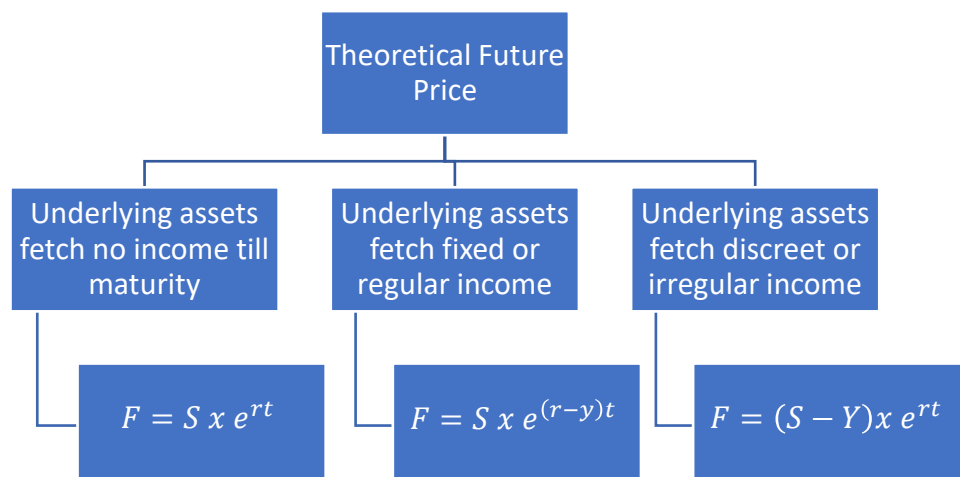
n refers to the number of days till expiry.

As suggested by the formula, n is directly proportional to the futures price. If the number of days to the expiry increase so does the futures price.

The Formula for Theoretical Future Pricing/Fair Pricing can be of any one of the three types depending upon the nature of income from the underlying assets.

1. Underlying assets fetch no income till maturity: (E.g.: Gold, Silver, Diamond etc.)
2. Underlying assets fetch fixed or regular income. (E.g.: Bonds, Debentures, T-Bills etc.)
3. Underlying assets fetch discrete or irregular income. (E.g.: Equity Shares)

Depending upon this the formula will differ



STEPS TO CALCULATE THE e^n

Value of e is 2.718281828. We should take upto 4 digits

$e = 2.7183$

Step No.	Step	Calculation for ($e^{0.03}$)
1	Type 2.7183	2.7183
2	Press the square root ($\sqrt{}$) button 12 times.	1.00024417206
3	Subtract 1 from the answer at step 2.	0.00024417206
4	Multiply the answer at step 3 with the power of 'e'	0.0000073251618
5	Add 1 to the answer at step 4	1.0000073251618
6	Press multiply (x) and equals (=) to button 12 times	1.030458401372838

Illustration 05:

A one year long future contract on a non-income earning security is entered when the stock price was ₹ 90 and risk-free rate of return is 12% p.a., with continuous compounding. What is the theoretical price of the future contract?
[$e^{0.12} = 1.1275$]

Solution:

$S = 90$, $r = 12\%$, $t = 1$ year

$$F = S \times e^{rt}$$

$$F = 90 \times e^{0.12 \times 1}$$

$$F = 90 \times e^{0.12}$$

$$F = 90 \times 1.1275$$

$$F = 90 \times 1.1275$$

$$F = 101.475$$

Illustration 06:

Ms. Yuvika has entered into a futures contract to buy one quintal of wheat at a spot price of ₹ 40,000. The wheat will be stored for 4 months' time period. Insurance and storage cost is expected to be ₹ 500 and interest expenses are 9% p.a. compounded continuously. You are required to calculate the fair price of the contract.
[$e^{0.03} = 1.0305$]

Solution 06:

$S = 40,000$; $r = 9\%$, $t = 4$ months or $(4/12)$ with context to year)

$$F = S \times e^{rt}$$

$$F = (40,000 + 500) \times e^{0.09 \times (\frac{4}{12})}$$

$$F = (40,500) \times e^{0.03}$$

$$F = (40,500) \times 1.0305$$

$$F = 41,735.25$$

Illustration 07:

The share price of Dharamdas Ltd. is ₹ 128 in spot market. No dividend is expected on this share. Risk free rate of return is 8%. What shall be the theoretical price of Dharamdas Ltd. 2 months future.

$$[e^{0.0133} = 1.0134]$$

Solution 07:

$$F = S \times e^{rt}$$

$$F = (128 + 0) \times e^{0.08 \times (\frac{2}{12})}$$

$$F = (128) \times e^{0.0133}$$

$$F = (128) \times 1.0134$$

$$F = 129.7152$$

Illustration 08:

A T-Bill with the coupon rate of 6% p.a. compounded continuously, is issued by the Government and is available in the spot market of ₹ 21,500. Cost of financing the project is 2% p.a. What is the fair price of 6 months future contract? $[e^{0.02} = 1.0202]$

Solution 08:

$S = 21,500$; $r = 6\%$; $y = 2\%$; $t = 6/12$

$$F = S \times e^{(r-y) \times t}$$

$$F = (21,500) \times e^{(0.06-0.02) \times (\frac{6}{12})}$$

$$F = (21,500) \times e^{0.02}$$

$$F = (21,500) \times 1.0202$$

$$F = 21,934.3$$

Illustration 09:

A bond having a coupon rate of 4% p.a., is currently priced at ₹ 500. The risk-free interest rate is 10%. What shall be the price of five months future contract?

Solution 09:

$$S = 500; r = 10\%; y = 4\%; t = 5/12$$

$$F = S \times e^{(r-y) \times t}$$

$$F = (500 + 0) \times e^{(0.10-0.04) \times (\frac{5}{12})}$$

$$F = (500) \times e^{0.025}$$

$$F = (500) \times 1.0253$$

$$F = 512.65$$

Illustration 10:

Current Price of a stock listed on NSE is ₹ 2,500. Expected yield is ₹ 5. Risk free interest rate is 11%. Calculate four month's future price.

Solution 10:

$$F = S - Y \times e^{rt}$$

$$F = (2500 - 5) \times e^{0.11 \times (\frac{4}{12})}$$

$$F = 2495 \times e^{0.0367}$$

$$F = 2495 \times 1.0373$$

$$F = 2588.06$$

Test your knowledge:

1. If the spot price of the gold is ₹ 75,000 and the interest rate is 7% and the contract settles in one year, what will be the theoretical future price?

$$[e^{0.07} = 1.0725] \text{ [Answer: 80,437.50]}$$

2. The share price of Lucifer Ltd. is ₹ 468.83 in spot market. The share doesn't pay any dividend. Risk free rate of return is 10.25%. What shall be the theoretical price of Lucifer Ltd. 5 months future.

$$[e^{0.0427} = 1.0436] \text{ [Answer: 484.053]}$$

3. A bond earning at 6% p.a., is currently priced at ₹ 2,100. The risk-free interest rate is 12%. What shall be the price of 3 months future contract? $[e^{0.0150} = 1.0151]$ [Answer: 2,131.71]

1.5 PRICING INDEX FUTURES

What are Index Futures?

With the help of index futures contracts, a trader can buy or sell a financial index now and have it settled later. Index futures are used by traders to wager on the direction of an index's price, such as the S&P 500. Investment managers and investors utilize index futures as a loss prevention tool for their stock holdings.

How do Index Futures Work?

Like other futures contracts, index futures provide the trader or investor the authority and duty to deliver the contract's cash value at a later time, which is determined by an underlying index. Unless an offsetting deal unwound the contract before it expires, the trader is required to provide the cash value upon expiration.

A single asset's or a group of assets' price is measured by an index. Index futures are based on an underlying asset (the index), making them derivatives. These items are used by traders to trade a variety of assets, such as currencies, commodities, and stocks. An investor could purchase or sell S&P 500 index futures to wager on the index's growth or decline.

How to Trade Index Futures?

In trading or investing in index futures, the buyer and seller lock in bids for purchases and sales. It is agreed upon by both parties to lawfully close their shares at a particular price on a particular date. A futures broker places buy and sell orders for traders on their behalf. Creating a long and short position with initial and maintenance margins for buy and sell orders is the next stage.

Futures contracts require payment in full in cash. Both the seller and the buyer have the option to pay and receive the cash difference in the agreed-upon contract price on the expiration date. In other words, the buyer benefits from a greater price while the seller suffers a lower price.

Types of Index Futures

Index futures are of several types, and they are mentioned below:

Nifty 50: The BSE's Sensitive Index, or Sensex, is composed of 50 underlying securities.

Nifty IT: The underlying assets are information technology shares. The success of the sector as a whole would determine the fate of these futures.

S&P BSE Sensex: The BSE's Sensitive Index, or Sensex, is composed of 30 underlying securities.

Nifty Bank: Since bank shares comprise the index, the performance of Nifty Bank futures is contingent upon the health of the banks.

S&P BSE Bankex: The Sensex lists the banking stocks that are included in the futures.

S&P BSE Sensex 50: This index includes 50 equities as opposed to the Sensex's 30.

22 central public sector companies make up the S&P BSE Bharat 22 Index.

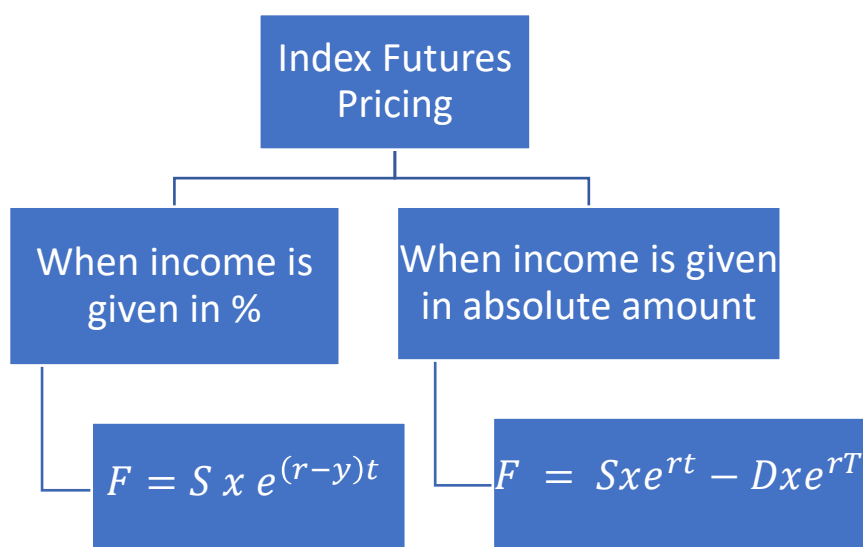
Others: Foreign stock exchanges are another source from which you could trade these futures.

Importance of the Index Futures

Futures contracts are one of the most profitable trading options when one does not have enough cash on hand to buy significant quantities of stocks. This investment, which is based on derivatives, enables traders to make more money while spending less. Additionally, there are two ways to use stock index futures or stocks.:

Futures contracts allow seasoned traders to speculate on the future course of an index or underlying asset. Put simply, it means that investors can bet on a group of assets by speculating on a bullish or bearish market, as an alternative to purchasing or selling futures contracts. When speculating, traders need to keep up with market movements in order to secure profitable positions.

Futures contracts are widely used by traders as a hedge against losses resulting from extreme fluctuations in stock prices. Investors with stock portfolios or equity index options trade futures contracts to lower their risk of losing money when stock prices decline. In this instance, the value of futures contracts increases as opposed to stock prices declining.



Where,

F = Index Future's Fair Price

S = Spot Price

e = continuous compounding factor

r = risk free interest rate

y = % income yield

t = time till maturity

T = t – D period.

D = Dividend

Exercise:

Illustration 11

Index price is ₹ 2,300, what is the fair price of 8 months futures index contract, when the risk-free interest rate is 9% and dividend is 5%.

Solution 11:

a. Theoretical Futures Price

$$F = Sxe^{(r-y)t}$$

$$F = 2,300xe^{(0.09-0.05)\left(\frac{8}{12}\right)}$$

$$F = 2,362.16$$

Illustration 12:

Current index price is 6,000. Three-month risk-free rate is 5% p.a. Dividend yield over the next three months is 2% p.a. Six-month risk-free rate is 6.5% p.a. Dividend yield over the next six month is 3% p.a. Calculate the fair value of index future for three month and six-month contracts. (All interest rates and dividend yields are continuously compounded)

Solution 12:

a. Fair value of index future for three-month contracts

$$F = Sxe^{(r-y)t}$$

$$F = 6000xe^{(0.05-0.02)\left(\frac{3}{12}\right)}$$

$$F = 6045.17$$

b. Fair value of index future for three month and six-month contracts

$$F = Sxe^{(r-y)t}$$

$$F = 6000xe^{(0.05-0.02)\left(\frac{3}{12}\right)}$$

$$F = 6045.17$$

Illustration 13:

Current value of Nifty 50 is 21,510, Current risk-free rate is 15% p.a. Dividend income is expected to be ₹ 500 after 1 month. Calculate the fair value of 3 months index future.

Solution 13:

Given:

$$S = 21,510, r = 15\%, D = 500, t = 3 \text{ months}, T = 3 - 1 = 2$$

$$F = Sxe^{rt} - Dxe^{rT}$$

$$F = \left(21510xe^{0.15\left(\frac{3}{12}\right)}\right) - \left(500xe^{0.15\left(\frac{2}{12}\right)}\right)$$

$$F = (22331.94006 - (512.65756))$$

$$F = 21819.23954$$

Test your knowledge:

1. Current value of a particular stock index is 4,800. The expected dividend is 4% and the risk-free rate in the market is 10%. You are required to calculate the fair value of the 5 months index future.

$$[F = 4921.51]$$

2. Current value of Nifty 100 is 15,210, Current risk-free rate is 10% p.a. Dividend income is expected to be ₹ 180 after 2 months. Calculate the fair value of 5 months index future.

$$[F = 15672.62878]$$

1.6 INITIAL MARGIN AND MAINTENANCE MARGIN

A margin is the collateral required to be deposited by the owner of a financial instrument to cover all or part of the counterparty's credit risk (usually their broker or an exchange). Any of the following actions by the holder could put them at risk:

- Borrowed cash from the counterparty to buy financial instruments,
- Entered into a derivative contract, or
- Sold financial instruments short,

Purchasing securities with money borrowed from a broker and utilizing other securities as collateral is known as margin purchasing. This amplifies the gains or losses incurred on the securities. The securities are used as the loan's collateral. The original amount of one's own cash used is equal to the net value, which is the difference between the value of the securities and the loan. In order to safeguard the broker against a decline in the value of the assets to the point that the investor is unable to repay the loan, this difference must remain over the minimum margin requirement.

When futures contracts are marked to market at the end of each day, profits are added and losses are subtracted from the initial margin amount. A margin call occurs when the broker requests that the trader top up the margin (also known as variation margin) to the initial margin amount after losses have lowered it to a specific level (referred to as the Maintenance Margin).

1.6.1 Relationship Between Initial Margin, Maintenance Margin, Margin Call and Variation Margin

After reviewing the definition of margin in futures trading, let's examine each of the aforementioned components of futures margin in more detail:

Initial Margin

The cash deposit needed to begin a new futures position is called initial margin, and it is calculated as a percentage of the total contract value. To open a futures position is to buy or sell futures contracts. Whether you are long or short in a futures position, initial margin is still applicable when trading futures. This is not the case with trading options, where you really get paid when you enter a short position rather than having to pay money.

A proportion of the total value covered by the futures contracts is used to compute initial margin. The proportion fluctuates according on whatever futures market you trade. The "SPAN Margin" system is used to determine the initial margin for more index futures and commodities futures globally. This system is subject to daily fluctuations.

Maintenance Margin

What is the lowest amount you can lower your margin balance before your broker becomes concerned? When it is less than the required Maintenance Margin for the position.

The bare minimum of margin required in your account to maintain the validity of your futures position is known as maintenance margin. The bare minimum that your broker or the exchange requires you to have in your account in order for losses to be subtracted from it is known as maintenance

margin. Anything less than that raises the possibility that you could not have enough cash on hand to cover losses.

Once your margin balance falls below maintenance margin level, you will receive what is known as a “Margin Call” from your broker.

Conceptual Explanation:

Suppose you are trading Nifty futures on the National Stock Exchange (NSE) of India. For this, we'll assume the following:

Nifty futures contract value: ₹ 10,00,000

Initial margin requirement: 10% of the contract value

Maintenance margin requirement: 7.5% of the contract value

Contract Value: ₹ 10,00,000

Initial Margin Percentage: 10%

Initial Margin = Contract Value × Initial Margin Percentage

Initial Margin = ₹10,00,000 × 0.10 = ₹1,00,000

To open a Nifty futures position worth ₹ 10,00,000, you need to deposit ₹ 1,00,000 as the initial margin.

Maintenance Margin Percentage: 7.5%

Maintenance Margin

= Contract Value × Maintenance Margin Percentage

Maintenance Margin = ₹ 10,00,000 × 0.075 = ₹75,000

You must maintain at least ₹ 75,000 in your margin account to keep your Nifty futures position open.

Margin Call Scenario

Let's assume the market moves against your position, and the value of your account equity drops to ₹ 70,000.

Maintenance Margin Requirement: ₹ 75,000

Current Account Equity: ₹ 70,000

Since your account equity (₹ 70,000) is below the maintenance margin requirement (₹ 75,000), you will receive a margin call. You need to deposit additional funds to bring your account equity back up to the initial margin level of ₹ 1,00,000.

Amount to Deposit = ₹ 1,00,000 - ₹ 70,000 = ₹ 30,000.

You need to deposit an additional ₹ 30,000 to meet the initial margin requirement again.

Illustration Summary

Initial Margin: Required to open the position: ₹1,00,000

Maintenance Margin: Minimum equity to maintain: ₹75,000

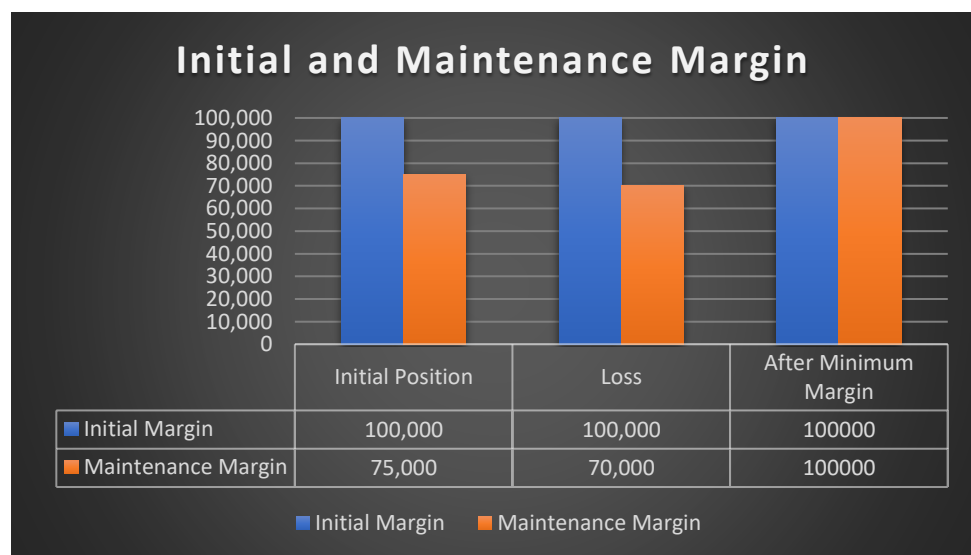
Margin Call: Triggered when account equity falls below ₹75,000

Additional funds required to restore initial margin: ₹30,000 (in this example)

Conclusion

Initial margin ensures you have enough collateral to start trading, while maintenance margin ensures you maintain sufficient equity to cover potential losses. Margin calls are a mechanism to protect brokers and exchanges from the risk of significant losses by requiring traders to replenish their accounts when necessary

Initial Margin and Maintenance Margin Illustration



1.7 MARKING TO MARKET AND VARIATION MARGIN

Let's delve into the concepts of marking to market and variation margin with an illustration.

Marking to Market: At the conclusion of each trading day, a futures contract's value is adjusted to reflect its current market value through a process known as marking to market, or MTM. This guarantees daily realization of all earnings and losses and the appropriate modification of margin accounts.

Variation Margin: As part of the marking to market procedure, variation margin is the additional money that must be deposited or that can be taken based on daily changes in the futures contract's market value. The purpose of this margin is to credit any gains or offset any losses brought on by daily price fluctuations.

Illustration:

Let's continue with the same example of Nifty futures, assuming the following:

Nifty futures contract value: ₹10,00,000

Initial margin requirement: ₹1,00,000

Maintenance margin requirement: ₹75,000

Day 1: Opening the Position

- You deposit ₹1,00,000 as initial margin.
- No profit or loss yet.

Day 2: Price Movement and MTM

- The market value of your futures contract decreases by ₹ 20,000.

Marking to Market Process

- New contract value: ₹ 9,80,000 (₹ 10,00,000 - ₹ 20,000)
- Loss: ₹ 20,000

Since your account now reflects a loss of ₹ 20,000, this amount is deducted from your margin account.

Margin Account Balance After MTM:

- Initial margin: ₹ 1,00,000
- Deducted due to loss: ₹ 20,000
- New balance: ₹ 80,000 (₹ 1,00,000 - ₹ 20,000)

Because your balance (₹ 80,000) is above the maintenance margin (₹ 75,000), no margin call is triggered.

Day 3: Further Price Movement and MTM

- The market value of your futures contract decreases by another ₹ 15,000.

Marking to Market Process

- New contract value: ₹ 9,65,000 (₹ 9,80,000 - ₹ 15,000)
- Additional loss: ₹ 15,000

Margin Account Balance After MTM

- Previous balance: ₹ 80,000
- Deducted due to loss: ₹ 15,000
- New balance: ₹ 65,000 (₹ 80,000 - ₹ 15,000)

Since your balance (₹ 65,000) is now below the maintenance margin (₹ 75,000), a margin call is triggered.

Margin Call:

- You need to deposit additional funds to bring your account back up to the initial margin level.
- Required deposit: ₹ 35,000 (to restore balance from ₹ 65,000 to ₹ 1,00,000)

Day 4: Price Movement and MTM

- The market value of your futures contract increases by ₹ 25,000.

Marking to Market Process

- New contract value: ₹9,90,000 (₹9,65,000 + ₹25,000)
- Gain: ₹ 25,000

Margin Account Balance After MTM:

- Previous balance: ₹ 1,00,000 (after fulfilling margin call)
- Credited due to gain: ₹ 25,000
- New balance: ₹ 1,25,000 (₹1,00,000 + ₹25,000)

Summary:

1. Initial Margin:

- Deposit: ₹ 1,00,000

2. Daily MTM Adjustments:

- Day 2: Loss of ₹ 20,000, new balance: ₹ 80,000
- Day 3: Loss of ₹ 15,000, new balance: ₹ 65,000, margin call triggered, deposit ₹ 35,000, new balance: ₹ 1,00,000
- Day 4: Gain of ₹ 25,000, new balance: ₹ 1,25,000

This process ensures that all market participants have sufficient funds to cover their positions daily, minimizing the risk of default.

EXERCISE:

Choose the best answer for each question.

1. **In futures contracts, what cost is included in the theoretical futures price to account for holding the asset until expiry?**
 - a) Transaction fees
 - b) Carrying costs (storage, interest, etc.) (Correct)
 - c) Brokerage commission
 - d) Dividends expected during the contract period

2. **What is the main purpose of margin requirements in futures contracts?**
 - a) To guarantee profits for successful speculations.
 - b) To ensure sufficient funds are available to meet potential losses. (Correct)
 - c) To cover administrative costs associated with the contract.
 - d) To discourage excessive leverage in the market.
3. **What happens when an investor receives a margin call on a futures position?**
 - a) The contract is automatically liquidated.
 - b) The investor must deposit additional funds to meet the maintenance margin. (Correct)
 - c) The expiry date of the contract is extended.
 - d) The investor receives a guaranteed profit on the position.
4. **How does daily marking to market impact the cash flow of an investor holding a futures contract?**
 - a) It has no impact on cash flow, only reflects price changes.
 - b) It requires daily cash settlements for any price movements. (Correct)
 - c) It triggers a margin call only if the price moves against the investor.
 - d) It allows investors to defer settlement until the contract expires.
5. **Compared to forwards, futures contracts are generally considered more:**
 - a) Risky due to exchange trading.
 - b) Liquid due to a wider pool of participants. (Correct)
 - c) Customizable in terms of contract details.
 - d) Subject to less regulation.
6. **Index futures contracts are most commonly used for:**
 - a) Hedging individual stock holdings.
 - b) Speculating on the performance of a broad market sector. (Correct)
 - c) Taking physical delivery of the underlying index.
 - d) Managing currency exchange rate risk.

- 7. Which of the following statements about futures contracts is FALSE?**
- a) They can be used to hedge existing holdings of the underlying asset.
 - b) They offer leverage, allowing control of a large position with a smaller capital outlay.
 - c) They require daily settlement of gains and losses based on market prices.
 - d) They always result in physical delivery of the underlying asset at expiry. (Correct)
- 8. What is the primary difference between a call option and a futures contract?**
- a) A call option conveys the right, but not the obligation, to buy the asset.
 - b) Futures contracts are exchange-traded, while options can be OTC or exchange-traded. (Correct)
 - c) Futures contracts require physical delivery, while options do not (usually).
 - d) Options have a premium cost, while futures contracts do not.
- 9. Which of the following can be used as the underlying asset in a futures contract?**
- a) Only individual stocks.
 - b) A variety of assets, including commodities, currencies, and indices. (Correct)
 - c) Options contracts on other assets.
 - d) Loans and other forms of debt.
- 10. What is the main advantage of using futures contracts for hedging purposes?**
- a) They guarantee a profit if the underlying asset price moves favorably.
 - b) They allow investors to speculate on price movements without risk of loss.
 - c) They help manage the risk of price fluctuations in the underlying asset. (Correct)
 - d) They provide a way to borrow funds for leveraged investments.

Answers to MCQ Questions on Futures Contracts

1. (b) Carrying costs (storage, interest, etc.)
2. (b) To ensure sufficient funds are available to meet potential losses.
3. (b) The investor must deposit additional funds to meet the maintenance margin.
4. (b) It requires daily cash settlements for any price movements.
5. (b) Liquid due to a wider pool of participants.
6. (b) Speculating on the performance of a broad market sector.
7. (d) They always result in physical delivery of the underlying asset at expiry.
8. (b) Futures contracts are exchange-traded, while options can be OTC or exchange-traded.
9. (b) A variety of assets, including commodities, currencies, and indices.
10. (c) They help manage the risk of price fluctuations in the underlying asset.

<https://www.indiainfo.com/knowledge-center/derivatives/how-are-futures-prices-determined>

<https://groww.in/p/what-is-index-futures>

<https://resource.cdn.icai.org/67846bos54415-cp8.pdf>

<https://icmai.in/upload/Students/Syllabus2016/Archive/Final/Paper-14.pdf>

DERIVATIVES OPTIONS

Unit Structure:

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Parties to the Options
- 2.3 Long Call, Short Call, Long Put and Short Put and Different Pay-Off Scenarios
- 2.4 Options V/S Futures
- 2.5 Holder/Buyer and Writer /Seller of an Option
- 2.6 At the Money, in the Money and Out of the Money Options
- 2.7 Intrinsic and Time Value
- 2.8 Option Spreads and Strategies
- 2.9 Put Call Parity Theorem

2.0 OBJECTIVES

- After reading this chapter, learner will be able to
- Understand the meaning of Call and its types.
- Differentiate between Options and Futures,
- Understand the meaning of writer of an Option, At the Money, In the Money and Out of The Money Options.
- Understand and Calculate Intrinsic and Time Value
- Understand different types of option spreads and strategies
- Understand and Calculate Put Call Parity Theorem.

2.1 INTRODUCTION

Options are financial derivatives that derive their value from an underlying asset, such as stocks, bonds, commodities, or indices. They provide the holder with the right, but not the obligation, to buy or sell the underlying asset at a predetermined price (the strike price) within a specified time frame (until expiration).

2.1.1 Types of Options:

There are two main types of options: American and European. An American, or American-style, option may be exercised at any time between the purchase date and the expiration date. The majority of exchange-traded

options are in American style, as are all stock options. A European, or European-style, option can be exercised only on its expiration date. In the Indian market, the majority of the selections are European in style.

2.1.2 Key Components of an Option Contract:

Derivative options come with a variety of terminologies that are crucial to understand for anyone involved in trading or investing in options. Here are some key terms:

I. Basic Terms

1. **Option:** A contract giving the buyer the right, but not the obligation, to buy (call option) or sell (put option) an underlying asset at a specified price within a specified time period.
2. **Underlying Asset:** The financial instrument (e.g., stock, index, commodity) on which an options contract is based.
3. **Call Option:** A financial contract that gives the buyer the right to buy the underlying asset at the strike price before the option expires.
4. **Put Option:** A financial contract that gives the buyer the right to sell the underlying asset at the strike price before the option expires.
5. **Strike Price (Exercise Price):** The specified price at which the underlying asset can be bought (call) or sold (put) by the option holder.
6. **Expiration Date:** The date on which the option contract becomes void and the right to exercise no longer exists.
7. **Time Value:** The additional value of an option beyond its intrinsic value, representing the probability that the option will become profitable before expiration.

II. Option Positions

1. **Long Position:** Holding an option contract (either call or put), entitling the holder to exercise the option.
2. **Short Position:** Selling or writing an option contract (either call or put), obligating the writer to fulfill the terms of the contract if exercised by the holder.

III. Pricing and Value

1. **Premium:** The price paid by the buyer to the seller (writer) for the option contract.
2. **Intrinsic Value:** The difference between the current price of the underlying asset and the strike price of the option. For calls, it's the current price minus the strike price (if positive). For puts, it's the strike price minus the current price (if positive).

3. **Extrinsic Value (Time Value):** The portion of the option's price that exceeds its intrinsic value, attributed to the remaining time until expiration and other factors like volatility.
4. **In-the-Money (ITM):** When the option has intrinsic value. For calls, it's when the underlying asset's price is above the strike price. For puts, it's when the underlying asset's price is below the strike price.
5. **Out-of-the-Money (OTM):** When the option has no intrinsic value. For calls, it's when the underlying asset's price is below the strike price. For puts, it's when the underlying asset's price is above the strike price.
6. **At-the-Money (ATM):** When the underlying asset's price is equal to the strike price.

IV. Other Terms

1. **American Option:** Can be exercised at any time before expiration.
2. **European Option:** Can only be exercised on the expiration date.
3. **Assignment:** When the holder of a short option position is required to fulfill the obligations of the contract, such as selling (call) or buying (put) the underlying asset.
4. **Exercise:** The action taken by the holder of an option to invoke the terms of the contract.
5. **Expiration Cycle:** The calendar cycle of expiration dates for options on a particular underlying asset, often monthly or quarterly.
6. **LEAPS (Long-Term Equity Anticipation Securities):** Long-term options with expiration dates longer than one year.
7. **Margin:** The collateral required to be deposited by the writer of an option to ensure they can fulfill the terms of the contract if assigned.
8. **Implied Volatility:** The market's forecast of a likely movement in the underlying asset's price and is derived from the option's price.

2.1.3 Option Strategies:

1. **Buying Calls or Puts:** Investors can buy call options if they are bullish on the underlying asset or put options if they are bearish.
2. **Selling Calls or Puts:** Investors can sell call options (covered or naked) to generate income if they believe the underlying asset's price will remain below the strike price. They can sell put options (cash-secured or naked) if they expect the underlying asset's price to remain above the strike price.

3. **Option Spreads:** These involve simultaneously buying and selling multiple options contracts to mitigate risk or profit from specific market conditions. Examples include vertical spreads, horizontal spreads, and diagonal spreads.

2.1.4 Risks Associated with Options:

1. **Limited Life:** Options have expiration dates, limiting the time available for the underlying asset's price to move favourably.
2. **Leverage:** Options contracts typically control a larger amount of underlying asset value than the premium paid, amplifying both potential profits and losses.
3. **Time Decay:** As options approach expiration, their time value diminishes, leading to potential loss of value even if the underlying asset's price remains unchanged.
4. **Volatility Risk:** Options are sensitive to changes in volatility. Increased volatility can increase option premiums, while decreased volatility can decrease them.

2.1.5 Uses of Options:

1. **Speculation:** Investors can use options to speculate on the direction of an underlying asset's price movement.
2. **Hedging:** Options can be used to hedge against adverse price movements in the underlying asset, reducing downside risk.
3. **Income Generation:** Selling options can generate income through the collection of premiums, particularly in stable or range-bound markets.
4. **Risk Management:** Options can be part of a risk management strategy to protect investment portfolios from potential losses.

2.2 PARTIES TO THE OPTIONS

In an option transaction, there are always two sorts of entities: buyers and sellers (also known as option writers). So, for every call or put option purchased, someone else sells or buys it. When they sell options, they are essentially creating a new security. This is known as "writing an option," and it explains one of the primary sources of options, as neither the associated company nor the options exchange issues options. When you write a call, you may be required to sell shares at the strike price any time before the expiration date. When you write a put, you may be required to buy shares at the strike price at any point before the contract expires. The price of an option is known as its premium. The buyer of an option cannot lose more than the original premium paid for the contract, regardless of what happens to the underlying securities.

As a result, the buyer's risk is always limited to the purchase price of the option. In contrast, the profit potential is theoretically endless.

In options trading, there are typically two main parties involved: the buyer (holder) and the seller (writer). Here's a breakdown of these parties and their roles:

1. Option Holder (Buyer)

- a. **Call Option Holder:** The buyer of a call option has the right, but not the obligation, to buy the underlying asset at the strike price before or at the expiration date. They benefit when the price of the underlying asset increases above the strike price.
- b. **Put Option Holder:** The buyer of a put option has the right, but not the obligation, to sell the underlying asset at the strike price before or at the expiration date. They benefit when the price of the underlying asset decreases below the strike price.

2. Option Writer (Seller)

- a. **Call Option Writer:** The seller of a call option has the obligation to sell the underlying asset at the strike price if the option is exercised by the holder. They receive the premium from the buyer for assuming this obligation. They benefit when the price of the underlying asset stays below the strike price.
- b. **Put Option Writer:** The seller of a put option has the obligation to buy the underlying asset at the strike price if the option is exercised by the holder. They receive the premium from the buyer for assuming this obligation. They benefit when the price of the underlying asset stays above the strike price.

2.3 LONG CALL, SHORT CALL, LONG PUT AND SHORT PUT AND DIFFERENT PAY-OFF SCENARIOS

The possible pay-off under various scenarios are as follows:

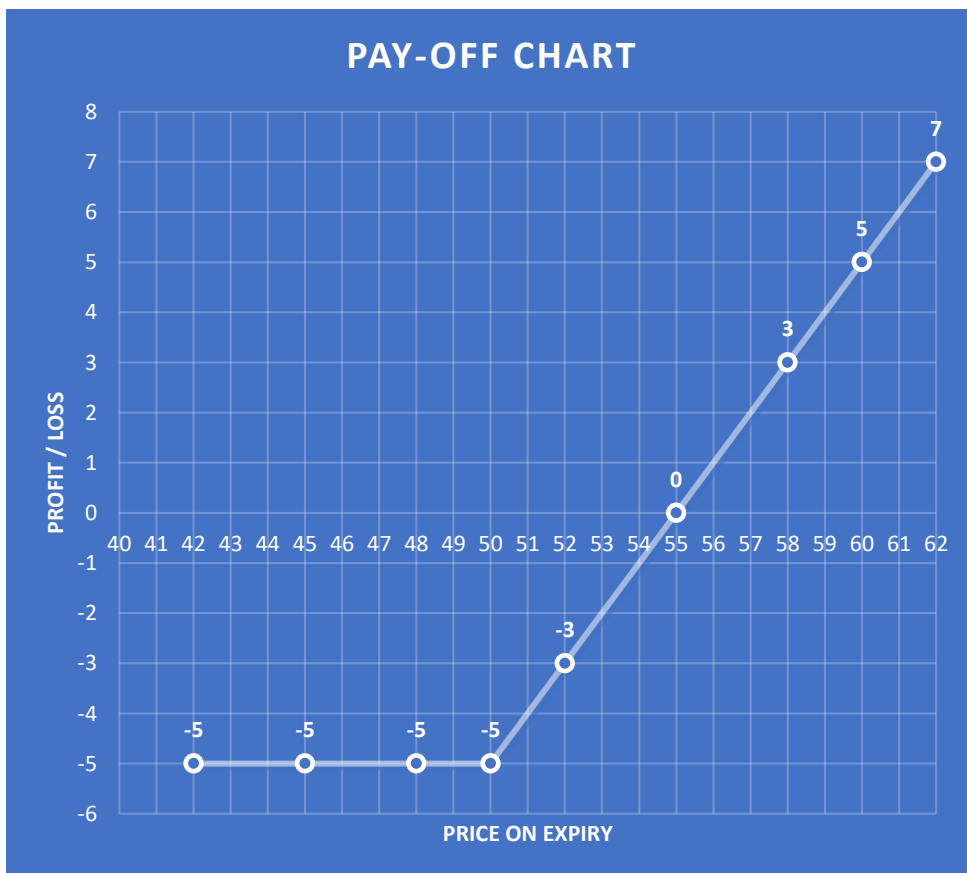
2.3.1 Long Call or Pay-off for a Call Buyer

A long call is an options strategy where the trader buys a call option, betting that the price of the underlying asset will go up.

- **Payoff:** The potential profit is unlimited as the stock price can theoretically rise indefinitely. The maximum loss is limited to the premium paid for the call.
- **Risk:** Limited to the premium paid.
- **Reward:** Unlimited.
- **Break-even Point:** Strike price + premium paid.

For example, Ms. Gouri buys a call option at strike price of 50 in exchange of a premium of 5. In case if actual price of the stock at the time of exercise is less than 50, Ms. Gouri would not exercise her option, her loss would be ₹ 5. Ms. Gouri would exercise her option at any price above 50. In such situation his loss would start reducing and at the price of ₹ 55 there will be Break Even.

A	B	C	D=B+C	E	F	*G=E-B-C
Situation	Premium	Strike Price	Total	Price on Expiry	Exercise	Loss /Gain
1	5	50	55	42	No	(5)
2	5	50	55	45	No	(5)
3	5	50	55	48	No	(5)
4	5	50	55	50	Optional	(5)
5	5	50	55	51	Yes	(4)
6	5	50	55	55	Yes	0
7	5	50	55	58	Yes	3
8	5	50	55	60	Yes	5
9	5	50	55	62	Yes	7



Note:

While making a decision of whether to exercise the option or not, one must think from the point of view of the holder of the call option who intends to buy the underlying securities. (In this case Ms. Gouri, has a right but not obligation to buy at ₹ 50. Whether Ms. Gouri will buy the underlying securities from the writer at the strike price of ₹ 50, if the underlying securities at expiry is below ₹ 50 in the open market?

Answer is **NO**, as she can purchase it from the open market at a price below ₹ 50. Once at expiry the price exceeds ₹ 50, it will be beneficial for her to purchase it at ₹ 50 (strike price) instead of buying at higher price from the market. From the writer of the option.

When the holder opts to not exercise, at that point her loss will be ₹ 5, which is nothing, but the Premium paid at the time of purchasing the option, the option will be effectively exercise only when the Price on Expiry is exceeding the strike price of ₹ 50. [At ₹ 50, it depends at the will of the holder, to exercise the option or not, as the profits remains unaffected whether the option is exercised or not]. Losses can never exceed ₹ 5 and Gain can be limitless depending upon the price on expiry.

* $G = E - B - C$ will be applied only when the option is exercised by the holder of the option, if the option is not exercised, the loss will be equal to Premium Paid (Column B)

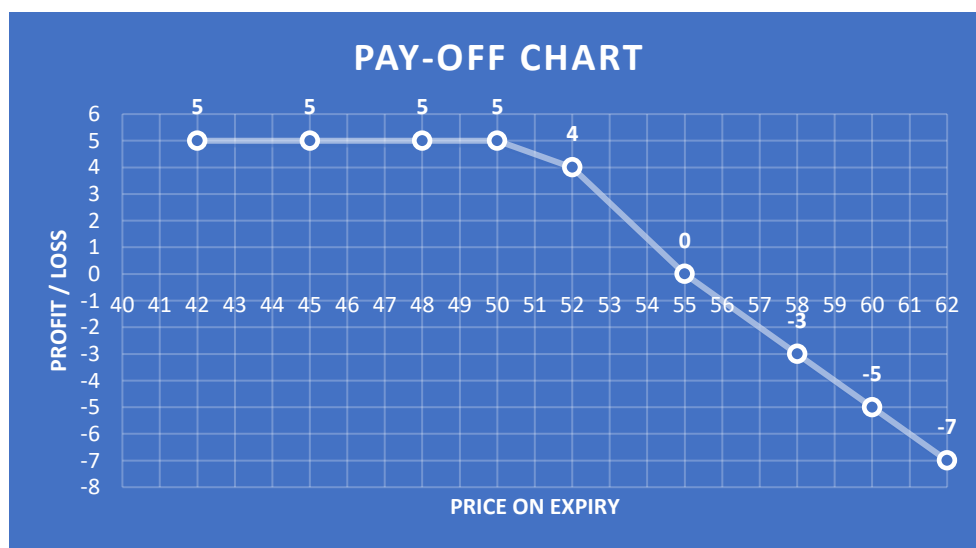
2.3.2 Short Call or Pay-off for a Call Seller

A short call is an options strategy where the trader sells (writes) a call option, betting that the price of the underlying asset will either go down or stay the same.

- **Payoff:** The maximum profit is limited to the premium received from selling the call. The potential loss is unlimited, as the stock price can theoretically rise indefinitely.
- **Risk:** Unlimited.
- **Reward:** Limited to the premium received.
- **Break-even Point:** Strike price + premium received.

The pay-off profile of Call Seller shall be the mirror image of the Long call.

A	B	C	D = B + C	E	F	*G = E – D
Situation	Premium	Strike Price	Total	Price on Expiry	Exercise	Loss/Gain
1	5	50	55	42	No	5
2	5	50	55	45	No	5
3	5	50	55	48	No	5
4	5	50	55	50	Optional	5
5	5	50	55	51	Yes	4
6	5	50	55	55	Yes	0
7	5	50	55	58	Yes	-3
8	5	50	55	60	Yes	-5
9	5	50	55	62	Yes	-7



Working

The Seller/Writer of a call option is under an obligation to sell the underlying asset at the strike price if the option is exercised by the holder. So, when the Price is below ₹ 50, the option shall not be exercised by the holder and the premium received by the Writer, shall be her income. Once the income price on expiry exceeds ₹ 50, the option will be exercised, and the price above ₹ 50 shall be deducted from the premium income, to

calculate the gain or loss. Once the price on expiry exceeds ₹ 55, there will be only losses for the writer of the call option.

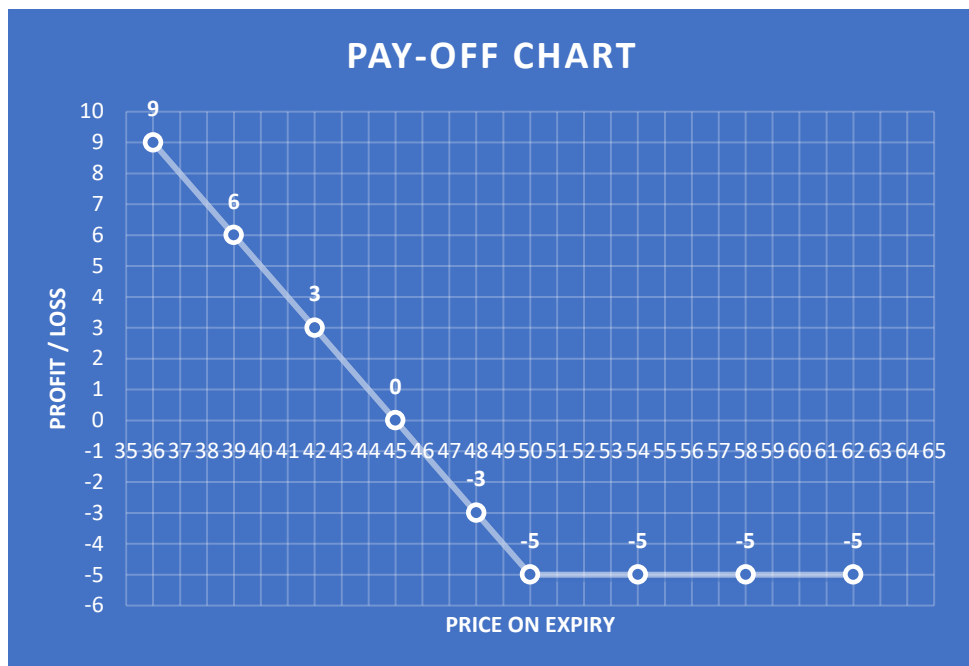
2.3.3 Long Put or Pay-off for a Put Buyer

A long put is an options strategy where the trader buys a put option, betting that the price of the underlying asset will go down.

- **Payoff:** The maximum profit is limited to the strike price minus the premium paid, as the lowest the stock can go is zero. The maximum loss is limited to the premium paid for the put.
- **Risk:** Limited to the premium paid.
- **Reward:** Limited to the strike price minus the premium.
- **Break-even Point:** Strike price - premium paid.

For example, Mr. Prathamesh buys a put option at strike price of ₹ 50 in exchange of a premium of 5. In case, if actual price of the stock at the time of exercise is less than ₹ 50, Mr. Prathamesh would exercise his option his gain would be (Spot Price - Exercise Price - Premium). Mr. Prathamesh would exercise his option at any price below 50. The break- even price will be ₹ 45 and Mr. Prathamesh would not exercise his option for any price above ₹ 50.

A	B	C	D = B + C	E	F	*G = C- E-B
Situation	Premium	Strike Price	Total	Price on Expiry	Exercise	Loss/Gain
1	5	50	55	36	Yes	9
2	5	50	55	39	Yes	6
3	5	50	55	42	Yes	3
4	5	50	55	45	Yes	0
5	5	50	55	48	Yes	-3
6	5	50	55	50	Optional	-5
7	5	50	55	54	No	-5
8	5	50	55	58	No	-5
9	5	50	55	62	No	-5



Working:

Note:

While making a decision of whether to exercise the option or not, one must think from the point of view of the holder of the put option who intends to sell the underlying securities. (In this case Mr. Prathamesh, has a right but not obligation to sell at the strike price of ₹ 50. Whether he will sell the underlying securities to the writer at the strike price of ₹ 50, if the underlying securities at expiry is above ₹ 50 in the open market?

Answer is **NO**, as he can sell it in the open market at a price above ₹ 50. Once at expiry the price falls below ₹ 50, it will be beneficial for him to sell it at ₹ 50 (strike price) to the writer of the option instead of selling at lower price in the market.

* $G = C - E - B$ will be applied only when the option is exercised. When the option is not exercised, the loss will be equal to Premium Paid (Column B) i.e. ₹ 5.

2.3.4 Short Put or Pay-off for a Put Seller

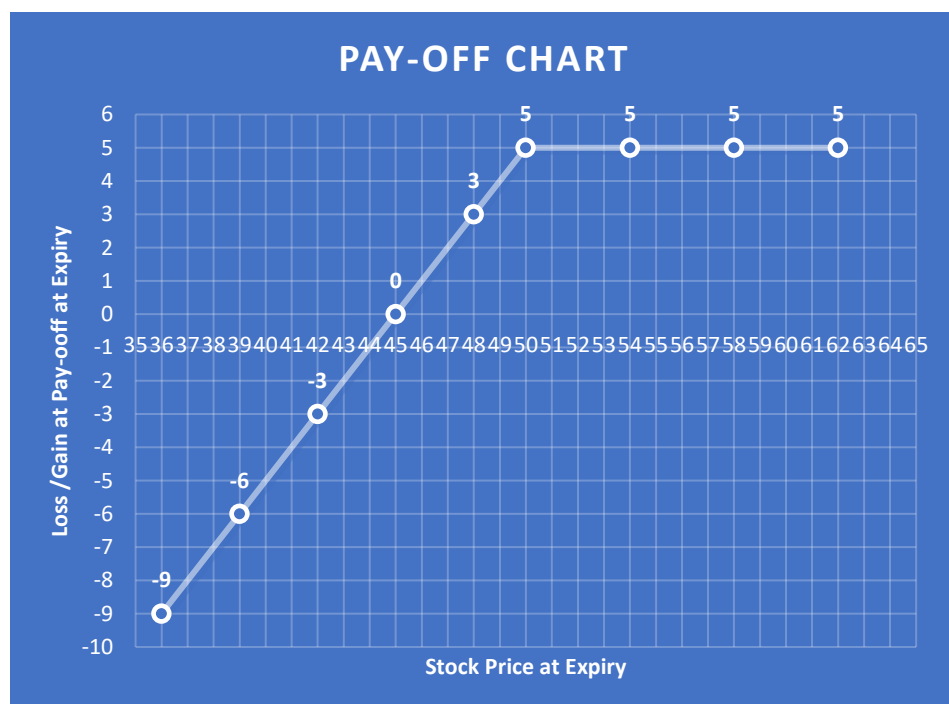
A short put is an options strategy where the trader sells (writes) a put option, betting that the price of the underlying asset will go up or stay the same.

- **Payoff:** The maximum profit is limited to the premium received from selling the put. The potential loss is substantial but limited to the strike price minus the premium received (if the stock goes to zero).
- **Risk:** Significant but limited.
- **Reward:** Limited to the premium received.
- **Break-even Point:** Strike price - premium received.

The pay-off profile of a put seller shall be the mirror image of the Long put.

A	B	C	D=B+C	E	F	*G=C-E-B
Situation	Premium	Strike Price	Total	Price on Expiry	Exercise	Loss/Gain
1	5	50	55	36	Yes	-9
2	5	50	55	39	Yes	-6
3	5	50	55	42	Yes	-3
4	5	50	55	45	Yes	0
5	5	50	55	48	Yes	3
6	5	50	55	50	Optional	5
7	5	50	55	54	No	5
8	5	50	55	58	No	5
9	5	50	55	62	No	5

The Seller/Writer of a put option is under an obligation to buy the underlying asset at the strike price if the option is exercised by the holder. So, when the Price is above ₹ 50, the option shall not be exercised by the holder and the premium received by the Writer, shall be his income. Once the income price on expiry falls below ₹ 50, the option will be exercised, and the price below ₹ 50 shall be deducted from the premium income, to calculate the gain or loss. Once the price on expiry falls below ₹ 45, there will be only losses for the writer of the put option. However, the price may fall maximum to ₹ 0, so the losses will be restricted to maximum ₹ 45.



Market View	Strategy	Maximum Profit	Maximum Loss	Risk	Reward	Break-even Point
Bullish	Long Call	Unlimited	Premium Paid	Limited	Unlimited	Strike + Premium Paid
Bearish	Short Call	Limited to Premium Received	Unlimited	Unlimited	Limited	Strike + Premium Received
Bearish	Long Put	Strike - Premium Paid	Premium Paid	Limited	Limited	Strike - Premium Paid
Bullish	Short Put	Limited to Premium Received	Strike - Premium Received	Significant but Limited	Limited	Strike - Premium Received

2.4 OPTIONS V/S FUTURES

Options and futures are both types of derivative instruments used in trading and hedging, but they have distinct differences in terms of structure, risk, and functionality. Here's a comparison of the two:

Aspects	Options	Futures
Meaning	Contracts that give the holder the right, but not the obligation, to buy (call) or sell (put) an underlying asset at a specified price before or at a certain date.	Contracts obligating the buyer to purchase, or the seller to sell, an underlying asset at a predetermined price at a specified time in the future.
Rights	Grants the right to buy (call) or sell (put).	Obligates both parties to transact at the contract's expiration.
Premium	The buyer pays a premium to acquire the option.	No premium paid; margin requirements are set instead.
Risk	Limited to the premium paid for the buyer; unlimited for the seller.	Potentially unlimited for both parties.
Potential Profit	Unlimited for call holders, limited for put holders. Sellers have limited profits (premium received).	Potentially unlimited for both buyers and sellers.

Exercise	Can be American (anytime before expiration) or European (only at expiration).	Always executed at the contract's expiration date.
Hedging	Useful for hedging specific price movements.	Commonly used for hedging against price changes in the underlying asset.
Trading Purpose	Often used for speculation, hedging, and income generation through premiums.	Mainly used for speculation and hedging.
Settlement	Can be settled in cash or by physical delivery of the underlying asset.	Can be settled in cash or by physical delivery, depending on the contract.
Leverage	High leverage due to lower premium costs.	High leverage due to margin requirements.
Expiration	Options have varying expiration dates; LEAPS can last several years.	Futures contracts typically have standard expiration dates (monthly, quarterly).

2.5 HOLDER/BUYER AND WRITER /SELLER OF AN OPTION

Let's dive deeper into the roles of the buyer and writer (seller) of an option, exploring their respective rights, obligations, risks, and potential rewards, with examples to illustrate these concepts.

2.5.1 Buyer of an Option

The buyer of an option, also known as the holder, has the following characteristics:

1. **Rights:** The buyer has the right, but not the obligation, to buy (call option) or sell (put option) the underlying asset at the strike price before the expiration date.
2. **Obligation:** The buyer has no obligation to exercise the option. If the market moves unfavourably, the buyer can let the option expire worthless.
3. **Risk:** The maximum loss for the buyer is limited to the premium paid for the option.
4. **Reward:** The potential profit for a call option buyer is theoretically unlimited if the underlying asset's price rises significantly. For a put

option buyer, the maximum profit is the difference between the strike price and the underlying asset's price, minus the premium paid, which can be substantial if the asset's price drops significantly.

Example of a Call Option Buyer:

Scenario: An investor buys a call option on stock XYZ.

Details:

Strike Price: ₹ 100

Premium: ₹ 5

Expiration Date: 1 month

Outcome 1 (Profitable):

If XYZ's price rises to ₹ 120, the buyer can exercise the option, buying the stock at ₹ 100.

Profit: $(₹ 120 - ₹ 100) - ₹ 5 = ₹ 15$ per share.

Outcome 2 (Unprofitable):

If XYZ's price remains at ₹ 95, the buyer will let the option expire worthless.

Loss: ₹ 5 premium paid.

Example of a Put Option Buyer:

Scenario: An investor buys a put option on stock ABC.

Details:

Strike Price: ₹ 80

Premium: ₹ 4

Expiration Date: 1 month

Outcome 1 (Profitable):

If ABC's price drops to ₹ 60, the buyer can exercise the option, selling the stock at ₹ 80.

Profit: $(₹ 80 - ₹ 60) - ₹ 4 = ₹ 16$ per share.

Outcome 2 (Unprofitable):

If ABC's price remains at ₹ 85, the buyer will let the option expire worthless.

Loss: ₹ 4 premium paid.

2.5.2 Writer (Seller) of an Option

The writer of an option, also known as the seller, has the following characteristics:

1. Rights: The writer does not have the right to exercise the option. Instead, they must fulfill the obligation if the option buyer decides to exercise.

2. **Obligation:** The writer is obligated to buy (if a put is exercised) or sell (if a call is exercised) the underlying asset at the strike price if the buyer exercises the option.
3. **Risk:** The potential loss for a call option writer is unlimited if the underlying asset's price rises significantly. For a put option writer, the maximum loss occurs if the underlying asset's price drops to zero.
4. **Reward:** The writer's maximum profit is limited to the premium received from selling the option.

Example of a Call Option Writer:

Scenario: Another investor writes (sells) the same call option.

Details:

Strike Price: ₹ 100

Premium Received: ₹ 5

Expiration Date: 1 month

Outcome 1 (Profitable):

If XYZ's price remains at ₹ 95, the option expires worthless, and the writer keeps the ₹ 5 premium.

Outcome 2 (Unprofitable):

If XYZ's price rises to ₹ 120, the writer must sell the stock at ₹ 100, incurring a loss.

Loss: $(₹ 120 - ₹ 100) - ₹ 5 = ₹ 15$ per share.

Example of a Put Option Writer:

Scenario: Another investor writes (sells) the same put option.

Details:

Strike Price: ₹ 80

Premium Received: ₹ 4

Expiration Date: 1 month

Outcome 1 (Profitable):

If ABC's price remains at ₹ 85, the option expires worthless, and the writer keeps the ₹ 4 premium.

Outcome 2 (Unprofitable):

If ABC's price drops to ₹ 60, the writer must buy the stock at ₹ 80, incurring a loss.

Loss: $(₹ 80 - ₹ 60) - ₹ 4 = ₹ 16$ per share.

Understanding these roles is essential for traders to develop strategies that align with their risk tolerance and market outlook.

2.6 AT THE MONEY, IN THE MONEY AND OUT OF THE MONEY OPTIONS

There are three different terms for describing where an option is trading in relation to the price of the underlying security. These terms are "In-the-Money", "At-the-Money", and "Out-of-the-Money".

- An option is "In-The-Money" if by exercising of option the buyer makes gains;
- An option is "Out-of-The-Money" if exercising of options would result in losses; &
- An option is "At-The-Money" if neither gain nor loss is witnessed.

The following table summarises the relationship between the Strike Price (X) and Price on Expiry or the market price (S) of the underlying assets:

Category	Call Option	Put Option	Cash Flows	Intrinsic Value
In the Money	$S > X$	$S < X$	Positive	Yes
Out of The Money	$S < X$	$S > X$	Negative	No
At the Money	$S = X$	$S = X$	Neutral	No

Consider HUL call option with a strike price of ₹ 910 and IOCL put option with a strike price of ₹ 1,000. Let us study how the option will be "In the Money", "Out of The Money" and "At the Money" under the following scenarios

HUL Call	Stock Price			IOCL Put	Stock Price		
X = 910	S = 810	S = 910	S = 1010	X = 1000	S = 900	S = 1000	S = 1010
Status	$S < X$	$S = X$	$S > X$	Status	$S < X$	$S = X$	$S > X$
Status	Out of the Money	At the Money	In the Money	Status	In the Money	At the Money	Out of the Money
Exercise Status	Not Exercise	Not Exercise	Exercise	Exercise Status	Exercise	Not Exercise	Not Exercise
Pay off (S - X)	0	0	100	Pay off (X - S)	100	0	0

2.7 INTRINSIC AND TIME VALUE

The option's price is determined by the option premium paid by the holder to the writer. This option premium has two components: Intrinsic and Time Value

So mathematically, Option Premium = Intrinsic Value + Time Value.

2.7.1 Intrinsic Value:

Intrinsic value of an option is that part of option premium which represents the extent to which the option is In-The- Money. The balance i.e. Premium - Intrinsic Value is the Time Value of option. Therefore, an option, which is out- of-the-money or at-the-money, has zero intrinsic value. Intrinsic value of any option can never be negative.

Intrinsic Value for Call and Put Option.

Call Option: Intrinsic Value = $\text{Max}(\text{Current Price of Underlying Asset} - \text{Strike Price}, 0)$

Put Option: Intrinsic Value = $\text{Max}(\text{Strike Price} - \text{Current Price of Underlying Asset}, 0)$

CONCEPT:

If a buyer of call or put would exercise an option for gains, we say that the option has positive intrinsic value. We can say that the buyer exercised because the option was In-The-Money. In other words, intrinsic value of an option is that part of option premium which represents the extent to which the option is In-The-Money. The balance i.e. Premium - Intrinsic Value is the Time Value of option. Intrinsic value of any option can never be negative. Similarly, time value can never be negative. In other words, option premium can never be negative.

Consider HUL one month call options with a strike price of ₹ 920. The current price of ACC is ₹ 950. Premium for purchasing this option is ₹ 40. Also consider IOCL put options with a strike price of ₹ 1000. The current price of RIL is ₹ 987. Premium for purchasing this option is ₹ 35. Let us study how to interpret intrinsic and time values in the following scenarios.

HUL Call X = 920	Stock Price			IOCL Put X = 1,000	Stock Price		
Premium = 40	S = 950	S = 920	S = 900	Premium = 35	S = 987	S = 1000	S = 1010
Status	S > X	S = X	S < X	Status	S < X	S = X	S > X
Status	In the Money	At the Money	Out of the Money	Status	In the Money	At the Money	Out of the Money
Intrinsic Value	30	0	0	Intrinsic Value	13	0	0
Premium Paid	40	40	40	Premium Paid	35	35	35
Time Value	10.00	40.00	40.00	Time Value	22	35	35
Exercise Status	Exercise	Not Exercise	Not Exercise	Exercise Status	Exercise	Not Exercise	Not Exercise
For call option, only when $S > X$ i.e. for In the Money options, Intrinsic Value is positive; Only then it is exercised				For put option, only when $X > S$, i.e. for In the Money options, Intrinsic Value is positive; Only then it is exercised			

2.7.2 TIME VALUE

The time value of an option, also known as its extrinsic value, is the chance that the option will expire in the money, or, to put it another way, the quantification of the probability that the underlying price will change and affect the option's value in the remaining time until expiration. This figure is dependent on both the underlying's price volatility and the amount of time until the option expires. The difference between the option premium and the intrinsic value is the mathematical equivalent of the option's time value. The total premium paid is therefore equal to the time value of the options if there are no at-or out-of-the-money options. Additionally, the option's time value cannot be negative.

So mathematically, $\text{Time Value} = \text{Option Premium} - \text{Intrinsic Value}$.

Let's illustrate the intrinsic and time values of an option:

Suppose we have a call option on a stock with the following details:

Current stock price (S): ₹ 1,500

Strike price (X): ₹ 1,400

Option premium (P): ₹150

1. Intrinsic Value:

For a call option, the intrinsic value is calculated as:

$$\text{Intrinsic Value} = \text{Max}(S - X, 0)$$

$$\text{Intrinsic Value} = \text{Max}(1500 - 1400, 0) = ₹100]$$

2. Time Value

The time value is the remaining portion of the option premium after accounting for the intrinsic value:

$$\text{Time Value} = P - \text{Intrinsic Value}$$

$$\text{Time Value} = 150 - 100 = ₹ 50$$

Breakdown

Intrinsic Value: ₹ 100 (the amount by which the stock price exceeds the strike price)

Time Value: ₹ 50 (the additional premium paid for the potential future increase in value before expiration)

Conclusion

Total Option Premium (P): ₹ 150

Intrinsic Value: ₹ 100

Time Value: ₹ 50

What happens in this example,

a. if the stock price (S) were exactly equal to the strike price (X) (i.e. ₹ 1,400)?

b. if the option were deeply in-the-money 1,600.

Scenario 1: Stock Price (S) Equals Strike Price (X)

Stock Price (S): ₹ 1,400

Strike Price (X): ₹ 1,400

Option Premium (P): ₹ 150

1. Intrinsic Value:

For a call option, when $S = X$

$$\text{Intrinsic Value} = \text{Max}(S - X, 0)$$

$$\text{Intrinsic Value} = \text{Max}(1400 - 1400, 0) = ₹ 0$$

2. Time Value:

The time value in this case is the entire option premium since the intrinsic value is ₹ 0:

$$\text{Time Value} = P - \text{Intrinsic Value}$$

$$\text{Time Value} = 150 - 0 = ₹ 150$$

Breakdown

Intrinsic Value: ₹ 0

Time Value: ₹ 150

Scenario 2: Deeply In-The-Money Option

Stock Price (S): ₹ 1,600

Strike Price (X): ₹ 1,400

Option Premium (P): ₹ 220

1. Intrinsic Value:

For a call option, when (S) is significantly higher than (X):

$$\text{Intrinsic Value} = \text{Max}(S - X, 0)$$

$$\text{Intrinsic Value} = \text{Max}(1600 - 1400, 0) = ₹ 200]$$

2. Time Value:

The time value is the remaining portion of the option premium after accounting for the intrinsic value:

$$\text{Time Value} = P - \text{Intrinsic Value}$$

$$\text{Time Value} = 220 - 200 = ₹ 20$$

Breakdown

Intrinsic Value: ₹ 200

Time Value: ₹ 20

Conclusion

In Scenario 1, where the stock price (S) is equal to the strike price (X), the intrinsic value is ₹ 0, and the entire premium of ₹ 150 represents the time value. This situation reflects that the option has no immediate value if exercised but still holds potential value until expiration due to time value.

In Scenario 2, where the option is deeply in-the-money ($S = ₹ 1,600$) and ($X = ₹ 1,400$), most of the premium is composed of intrinsic value (₹ 200), reflecting the substantial immediate value if exercised. The remaining portion of the premium (₹ 20) represents the time value, which is relatively small because the likelihood of additional gains before expiration is lower.

These examples illustrate how the intrinsic and time values of an option change based on the relationship between the stock price and the strike price, helping traders assess the potential profitability and risk of their option positions.

2.8 OPTION SPREADS AND STRATEGIES

2.8.1 Option Spreads

An options spread is a trading strategy that involves buying and selling multiple options of the same underlying asset but with different strike

prices, expiration dates, or both. Spreads can help manage risk, reduce costs, and potentially increase profits. They come in various types, each suited for different market conditions and expectations.

2.8.2 Types of Options Spreads

1. Vertical Spreads:

Involve buying and selling options of the same type (calls or puts) with the same expiration date but different strike prices. Vertical is also called as money spread.

- a. **Bull Call Spread:** Buy a call option with a lower strike price and sell a call option with a higher strike price. Used when expecting a moderate increase in the underlying asset's price.

Example: Buy a call with a strike price of ₹ 1,400 and sell a call with a strike price of ₹ 1,500.

- b. **Bear Put Spread:** Buy a put option with a higher strike price and sell a put option with a lower strike price. Used when expecting a moderate decrease in the underlying asset's price.

Example: Buy a put with a strike price of ₹ 1,500 and sell a put with a strike price of ₹ 1,400.

2. Horizontal Spreads:

Involve buying and selling options of the same type and strike price but with different expiration dates. It is also called as Calendar spread or Time spread.

Calendar Spread: Buy a longer-term option and sell a shorter-term option with the same strike price. It is used when expecting little movement in the underlying asset's price in the short term but more significant movement over the longer term.

Example: Buy a call option expiring in three months and sell a call option with the same strike price expiring in one month.

3. Diagonal Spreads:

Combine elements of both vertical and horizontal spreads by using options of the same type but with different strike prices and expiration dates.

Diagonal Spread: Buy a longer-term option with one strike price and sell a shorter-term option with a different strike price. Used for more complex strategies involving different expectations over time.

Example: Buy a call option expiring in three months with a strike price of ₹1400 and sell a call option expiring in one month with a strike price of ₹1500.

4. Ratio Spreads:

Involve buying and selling a different number of options. Typically, the trader buys one option and sells more than one option.

Ratio Call Spread: Buy a call option and sell more call options with a higher strike price.

Example: Buy one call option with a strike price of ₹ 1,400 and sell two call options with a strike price of ₹ 1,500.

5. Butterfly Spreads:

Involve three strike prices and typically consist of either all calls or all puts. The trader buys one option at the lowest strike, sells two options at the middle strike, and buys one option at the highest strike.

Long Butterfly Spread (with Calls): Used when expecting low volatility.

Buy 1 Call option at higher price, buy another call at lower price and sell both the calls at average price.

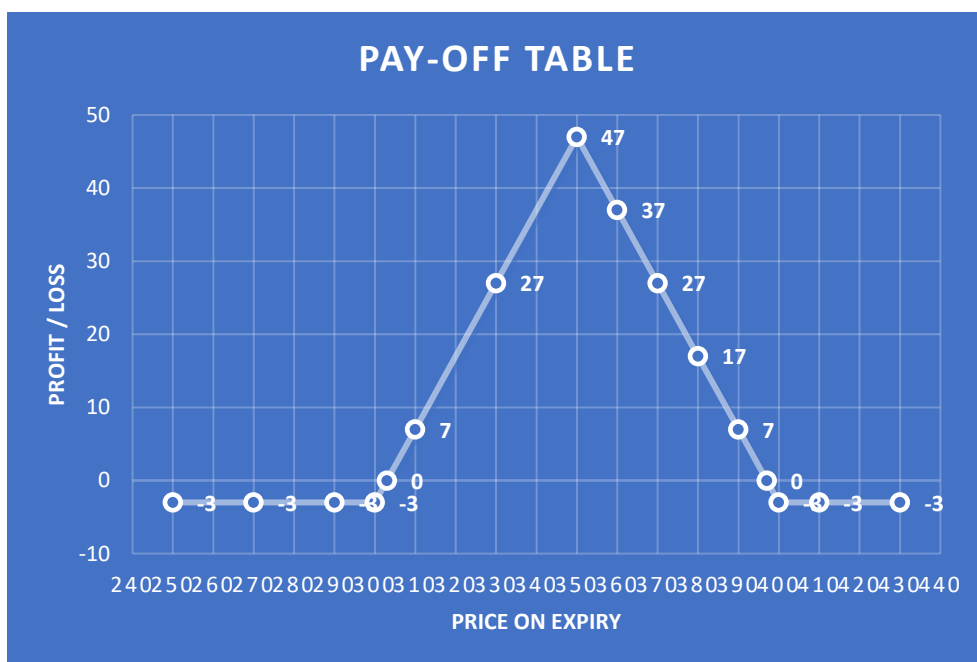
So here, we are buyer or holder of the option and also seller or writer of the option.

E.g. Mr. Sumedh is anticipating a lower volatile market.

He purchases one call at strike price of ₹ 400 at a premium of ₹ 5. He further purchases another call at strike price of ₹ 300 at a premium of ₹ 10. He sells both the calls at the average price at a premium of ₹ 6. You are required to prepare pay-off table and chart.

A	B = MAX(B- 400),0	C = MAX(B- 300),0	D = 2 x MAX(A- 350),0	E	F=B+C + D+E
Price on Expiry	Call Option Strike Price (X) = 400	Call Option Strike Price (X) = 300	Call Option Strike Price (X) = 350	Pre miu m WN. 1	Net Results
250	0	0	0	-3	-3
270	0	0	0	-3	-3
290	0	0	0	-3	-3
300	0	0	0	-3	-3
303	0	3	0	-3	0
310	0	10	0	-3	7

330	0	30	0	-3	27
350	0	50	0	-3	47
360	0	60	-20	-3	37
370	0	70	-40	-3	27
380	0	80	-60	-3	17
390	0	90	-80	-3	7
397	0	97	-94	-3	0
400	0	100	-100	-3	-3
410	10	110	-120	-3	-3
420	20	120	-140	-3	-3
430	30	130	-160	-3	-3



Working Note:

Premium paid on purchase of Call	-5
Premium paid on purchase of Call	-10
Premium received by sell of Call (2 x 6)	+12
Net Premium	-3

6. Bull Spread:

A bull spread is an options strategy designed for investors who anticipate a moderate rise in an asset's price. It utilizes two call options on the same asset with the same expiry date but differing strike prices. Imagine this like buying a ticket (the long call) that lets you buy the asset at a specific price (lower strike) while simultaneously selling another ticket (the short call) that obligates you to sell the asset at a higher price (higher strike) by the expiry date. The beauty of this strategy lies in its defined risk profile. While your potential profits are capped at the difference between the strike prices minus the net cost of the spread, your potential losses are also limited to that same net cost. This makes bull spreads ideal for investors with a cautiously optimistic outlook on the asset's price movement. It offers the potential for gain if the price climbs but protects against significant losses if the price stagnates or dips slightly. However, like any options strategy, understanding the risks and ensuring it aligns with your investment goals is crucial.

Strategy: Buy 1 call option at lower price, Sell 1 call option at higher price.

Ms. Pankti purchases 1 call option for strike price of ₹ 300, at a premium of ₹ 10. She sells 1 call option for strike price of ₹ 350, at a premium of ₹ 6. Prepare pay off table and graph.

A	$B = \text{MAX}(A - 300, 0)$	$C = \text{MIN}(350 - A, 0)$	D	$D = B + C$
Price on Expiry	Buy Call Option	Sell Call Option	Premium	Net Results
	Strike Price (X) = 300	Strike Price (X) = 350	WN. 1	
250	0	0	-4	-4
270	0	0	-4	-4
290	0	0	-4	-4
300	0	0	-4	-4
304	4	0	-4	0
310	10	0	-4	6
320	20	0	-4	16
330	30	0	-4	26
340	40	0	-4	36
350	50	0	-4	46
360	60	-10	-4	46
370	70	-20	-4	46
380	80	-30	-4	46



Working Note:

Premium paid on purchase of Call	-10
Premium received by sell of Call	+6
Net Premium	-4

7. Bear Spread:

A bear spread, in contrast to its bullish counterpart, is an options strategy crafted for investors who expect a decline, or at least a stagnant price movement, in an underlying asset's value. Similar to a bull spread, it involves two options contracts with the same expiration date but utilizes put options instead of calls.

Imagine this scenario: you enter a bear spread by selling a put option (granting someone the right to sell the asset to you at a certain price) and simultaneously buying another put option with a lower strike price (giving you the right to sell the asset at a lower price). This creates a defined profit zone.

The key advantage of a bear spread is the limitation of your potential losses. If the asset price unexpectedly surges, your losses are capped at the net cost of the spread (the difference between the premium received for selling the put and the premium paid for buying the put). However, your profit potential is also limited. You earn if the asset price falls significantly below the higher strike price by expiration, but your gains are capped at the difference between the strike prices minus the net cost of the spread.

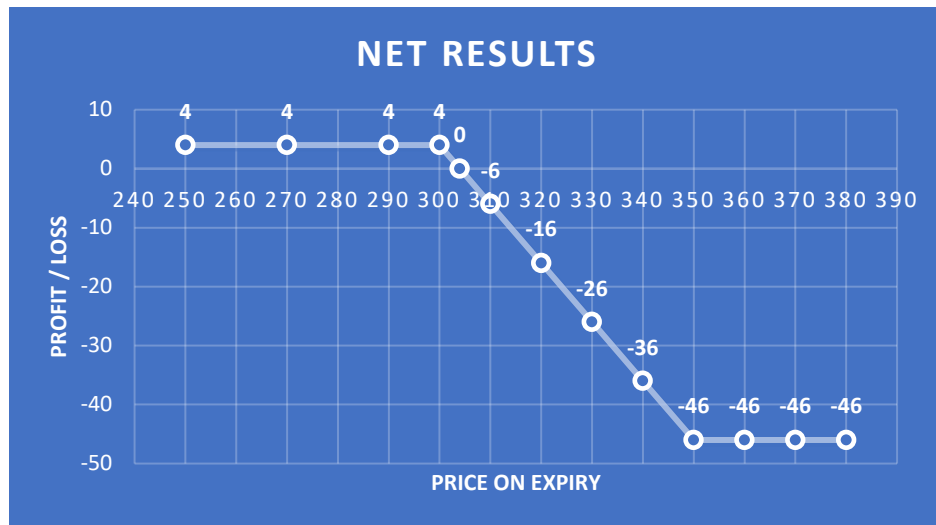
Therefore, bear spreads are suitable for investors with a bearish or neutral outlook on the asset's price. They offer the potential to profit if the price dips and provide some protection against minor price increases. But remember, like any options strategy, thoroughly understand the risks and

ensure it aligns with your investment goals and risk tolerance before deploying it.

Strategy: Buy 1 Call option at higher price and sell 1 Call option at lower price.

Mr. Hardik buys 1 Call option for ₹ 350 at a premium ₹ 6 and sells 1 call option for ₹ 300 at a premium of ₹ 10. You are required to prepare pay off table and graph.

A	$B = \text{MAX}(A - 350), 0$	$C = \text{MIN}(300 - A), 0$	D	$D = B + C + D$
Price on Expiry	Buy Call Option	Buy Call Option	Premium	Net Results
	Strike Price (X) = 350	Strike Price (X) = 300	WN. 1	
250	0	0	4	4
270	0	0	4	4
290	0	0	4	4
300	0	0	4	4
304	0	-4	4	0
310	0	-10	4	-6
320	0	-20	4	-16
330	0	-30	4	-26
340	0	-40	4	-36
350	0	-50	4	-46
360	10	-60	4	-46
370	20	-70	4	-46
380	30	-80	4	-46



Working Note:

Premium paid on purchase of Call	-6
Premium received by sell of Call	+10
Net Premium	+4

2.8.4 Option Strategies

Every day brings with it a variety of market scenarios, and investors must constantly have a plan for each one. Which approach needs to be used is typically determined by the risk appetite and expected return. Selecting a plan for a particular circumstance is aided by both one's financial circumstances and desire to make money. Any of these four market scenarios can be used to categorize any given market situation:

1. Bullish market situation
2. Bearish market situation
3. Neutral market situation
4. Volatile market situation

Strategies in Option

I. For Hedger of Risk i.e. an Investor

1. Have Stock, Buy a put option

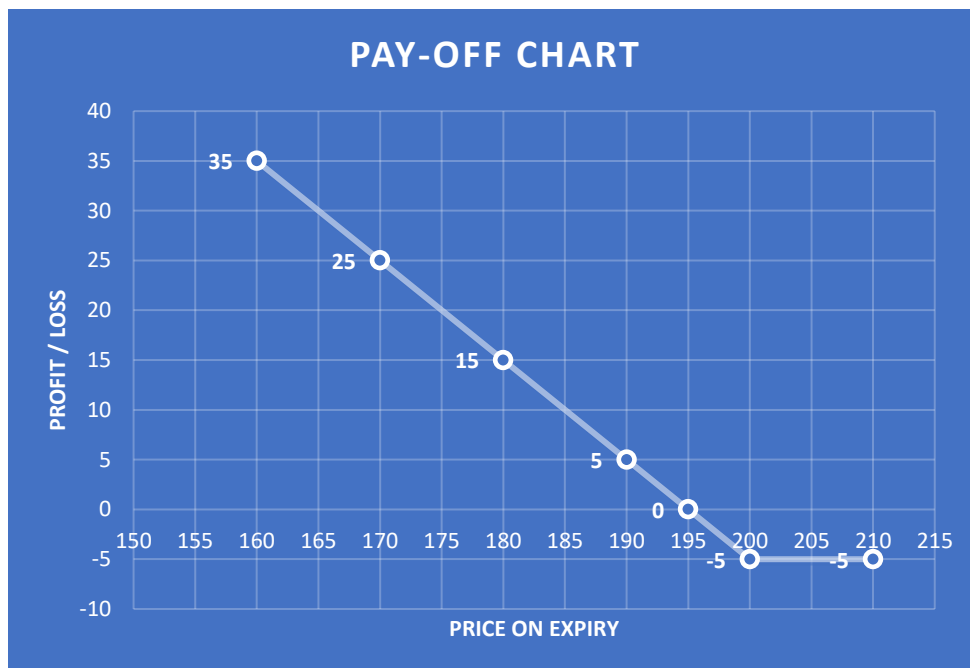
Mr. Rohit has shares of Reliance. Rohit has purchased a put option of Strike price of ₹ 200 at a premium of ₹ 5. Prepare a Pay-off table and chart.

Solution:

Derivatives Options

A	$B = \text{Max}(200 - A, 0)$	D	$E = C + D$
Price on Expiry	Buy a Put Option	Premium	Net Results
160	40	-5	35
170	30	-5	25
180	20	-5	15
190	10	-5	5
195	5	-5	0
200	0	-5	-5
210	0	-5	-5

*Strike Price = 200.



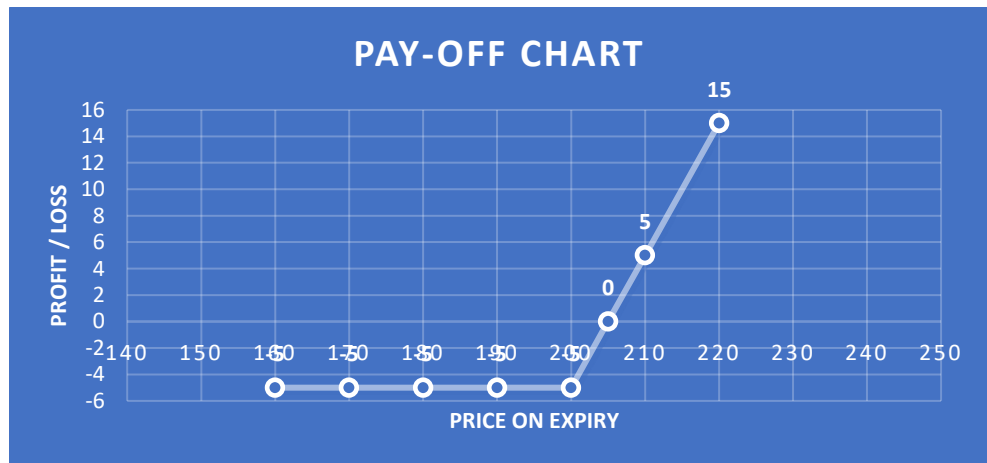
II. Have Funds, Buy a Call Option

Mr. Uday Shetty has sufficient funds, so buys a call option at strike price of ₹ 200 at a premium of ₹ 5. Prepare a Pay-off table and chart.

A	$B = \text{MAX}(A - 200, 0)$	C	$D = B + C$
Price on Expiry	Buy Call Option	Premium	Net Results
160	0	-5	-5
170	0	-5	-5

180	0	-5	-5
190	0	-5	-5
200	0	-5	-5
205	5	-5	0
210	10	-5	5
220	20	-5	15

* Strike Price = 200



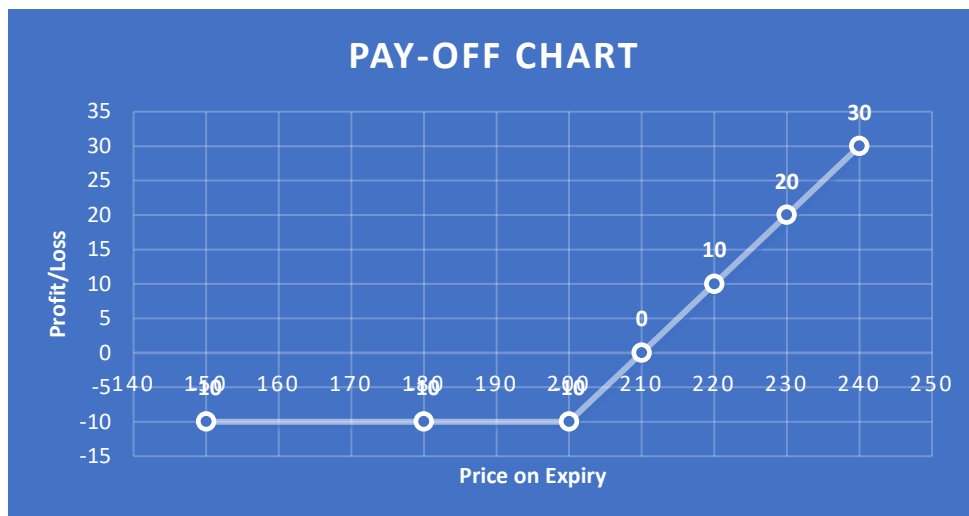
II. For Speculator

1. Bullish market

Strategy 1 – Buy a call option

Mr. Rahul has purchased a call option at a strike price of ₹ 200 at a premium of ₹ 10. Prepare a pay-off table.

A	$B = \text{Max}(A - 200, 0)$	C	$D = B + C$
Price on Expiry	Buy Call Option	Premium	Net Results
150	0	-10	-10
180	0	-10	-10
200	0	-10	-10
210	10	-10	0
220	20	-10	10
230	30	-10	20
240	40	-10	30



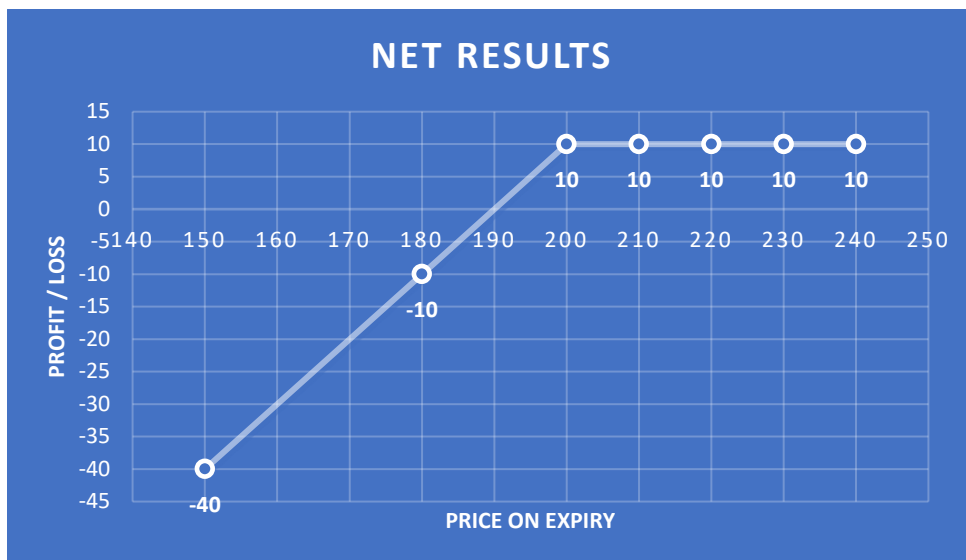
* Strike Price = 200

Strategy 2 - Sell a put option

This is an alternative strategy which can be used by a speculator. However, in this strategy, the risk will be more and gains will be less. Since we are writer of the option, the gains will be maximum only to the premium received by us whereas if the market turn to be bearish, the loss can increase significantly. As we have seen above, the income increases with more increase in the price of expiry.

Mr. Jason sells a put option at a strike price of ₹ 200 at a premium of ₹ 10. Prepare a pay-off table and chart.

A	B=Min(A-200,0)	C	D=B+C
Price on Expiry	Sell Put Option	Premium	Net Results
150	-50	10	-40
180	-20	10	-10
200	0	10	10
210	0	10	10
220	0	10	10
230	0	10	10
240	0	10	10



2. Bearish Market

Strategy 1: Buy a put option

Mr. Jayanto Roy purchased a put option at a strike price of ₹ 200 at a premium of ₹ 10. Prepare a pay-off table and chart.

A	B=Max(200-A,0)	C	D=B+C
Price on Expiry	Buy Put Option	Premium	Net Results
0	200	-10	190
150	50	-10	40
180	20	-10	10
190	10	-10	0
200	0	-10	-10
210	0	-10	-10
220	0	-10	-10
230	0	-10	-10

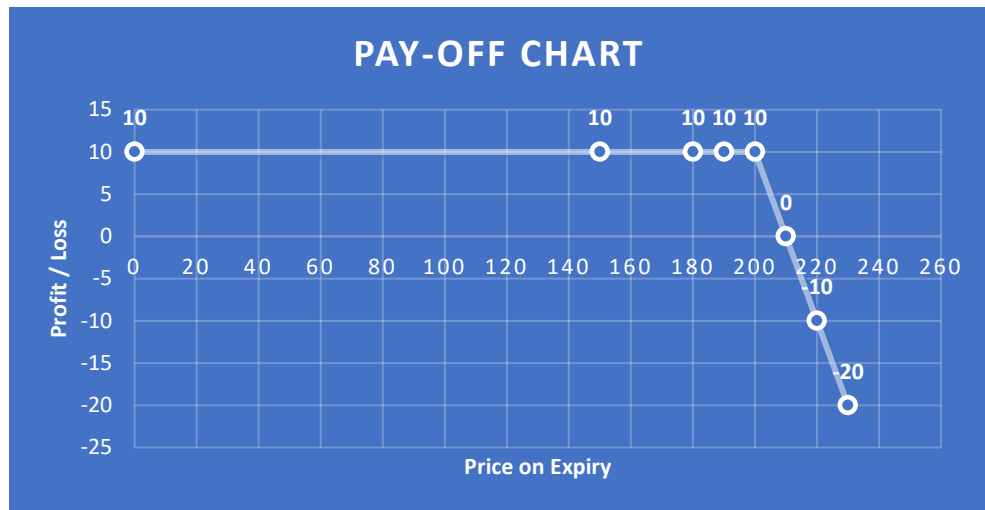


Strategy 2: Sell a call option

Alternative to buy a put option, we can also sell the call option. Here there will be risk, as the income will be restricted to maximum the amount of premium and expenses can be significantly higher.

Mr. Yogesh Mahajan sells a call option at the strike price of ₹ 200 at premium of ₹ 10. Prepare the pay-off table and chart.

A	B = MIN(200-A,0)	C	D=B+C
Price on Expiry	Sell Call Option	Premium	Net Results
0	0	10	10
150	0	10	10
180	0	10	10
190	0	10	10
200	0	10	10
210	-10	10	0
220	-20	10	-10
230	-30	10	-20



3. Anticipated Volatile Market

A volatile market is one, where it is difficult to predict in which direction the market will move.

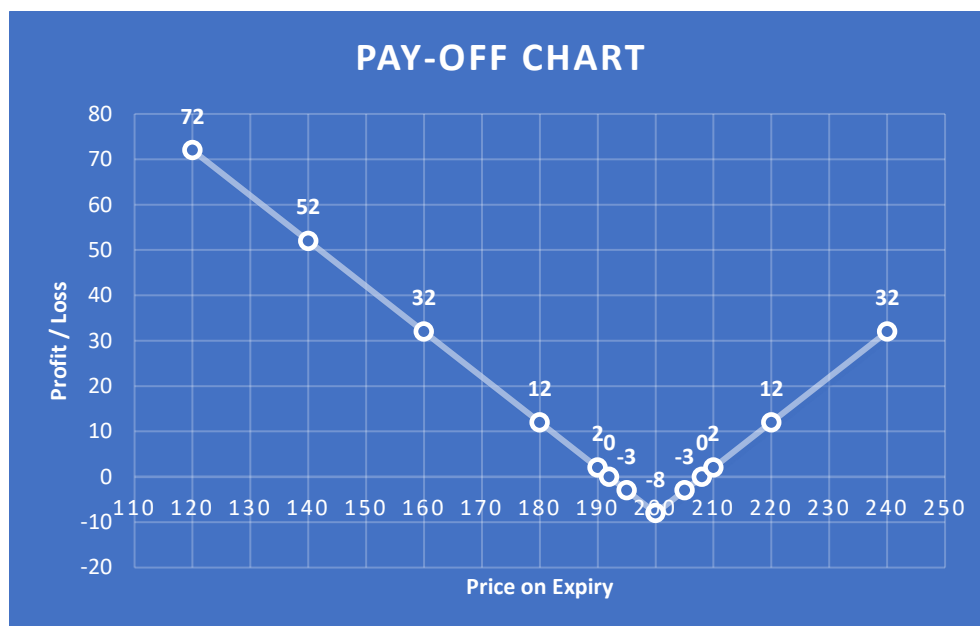
Strategy 1: Straddle Strategy

This strategy is used when it is difficult to predict whether the market will be bearish or bullish. In this strategy, we buy a call option and a put option of same expiry date and price.

Mr. Atal has purchased a call option and put option of strike price of ₹ 200. The premium of call option is ₹ 3, whereas premium of put option is ₹ 5. Prepare pay-off table and graph.

A	$B = \text{MAX}(A - 200, 0)$	$C = \text{Max}(200 - A, 0)$	D	$E = B + C - D$
Price on Expiry	Buy Call Option	Buy Put Option	Premium	Net Results
	Strike Price (X) = 200	Strike Price (X) = 200	WN	
120	0	80	-8	72
140	0	60	-8	52
160	0	40	-8	32
180	0	20	-8	12
190	0	10	-8	2
192	0	8	-8	0
195	0	5	-8	-3

200	0	0	-8	-8
205	5	0	-8	-3
208	8	0	-8	0
210	10	0	-8	2
220	20	0	-8	12
240	40	0	-8	32



Working Note:

Premium paid on Call	-3
Premium paid on Put	-5
Net Premium	-8

Strategy 2: Strangle Strategy

In this we will buy a call option at a higher strike price and a put option at a lower strike price of same expiry date.

Concept

In the call option, we have right to purchase. So, if we purchase at higher price, than we get the benefit of lower premium and vice versa, and in the put option we have right to sell, so when we sell at higher price the seller of the option is at disadvantageous position so he will charge higher price and vice versa.

So, we can summarise that:

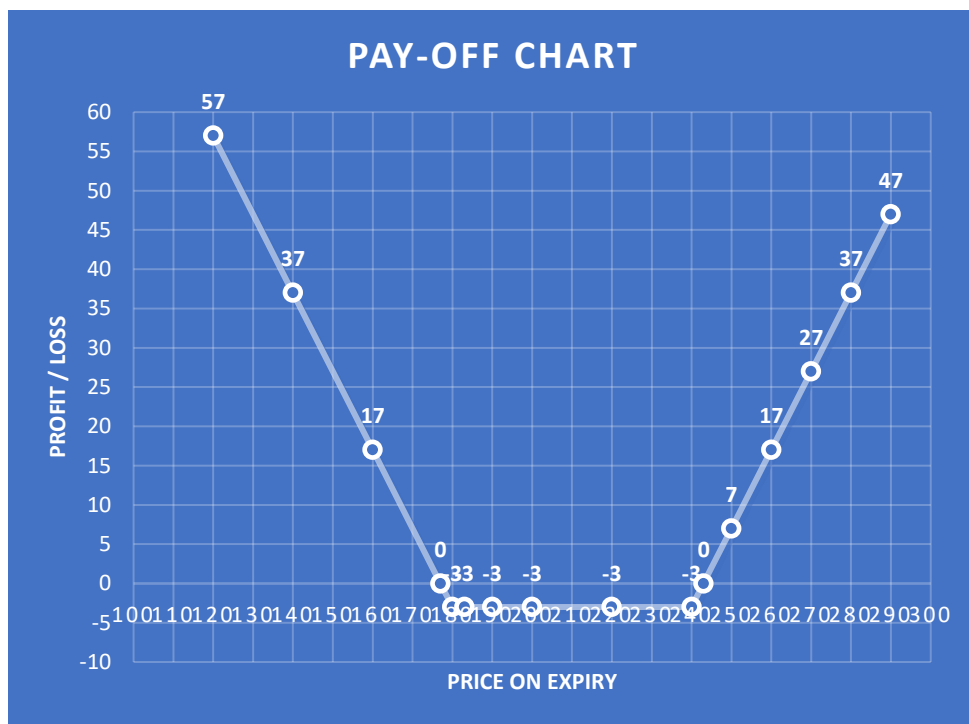
- In a call option “if the strike price is higher than premium will be less”
- In a put option, “if the strike price is higher than premium will be more.”

E.g. Ms. Mary has purchased a call option at a strike price of ₹ 240 and a put option at a strike price of ₹ 180. Premium on call and put option is ₹ 1 and ₹ 2 respectively.

Prepare pay-off table and draw graph.

Pay off Table

A	$B = \text{MAX}(A - 200, 0)$	$C = \text{Max}(200 - A, 0)$	D	$E = B + C + D$
Price on Expiry	Buy Call Option	Buy Put Option	Premium	Net Results
	Strike Price (X) = 240	Strike Price (X) = 180	WN	
120	0	60	-3	57
140	0	40	-3	37
160	0	20	-3	17
177	0	3	-3	0
180	0	0	-3	-3
183	0	0	-3	-3
190	0	0	-3	-3
200	0	0	-3	-3
220	0	0	-3	-3
240	0	0	-3	-3
243	3	0	-3	0
250	10	0	-3	7
260	20	0	-3	17
270	30	0	-3	27
280	40	0	-3	37
290	50	0	-3	47



Working Note:

Premium paid on Call	-1
Premium paid on Put	-2
Net Premium	-3

Thus, whenever the market is volatile then we have these two strategies (Straddle and Strangle). The question is which strategy should be followed? So, the answer to it is, if the speculator has no constraint of the funds or sufficient funds to pay the premium, they can go with the Straddle, as it requires more premium money, however, if the funds are restricted, they can go with the Strangle strategy.

4. Anticipated Volatile Market but chances of Bearish is more

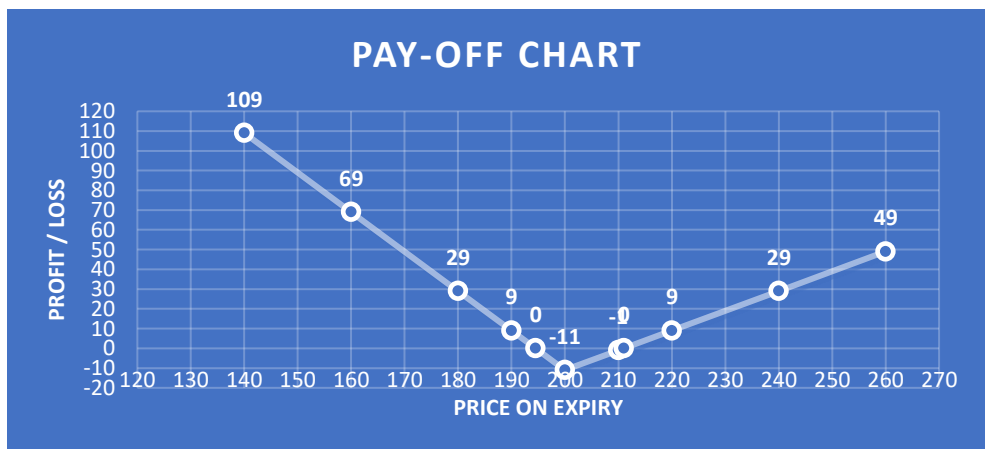
As we have studied earlier, when the market is bearish, we buy a put option, since the market is volatile, we will also buy a put option and a call option (as seen in the Strangle and Straddle Strategy). Since the market is more likely to be bearish, we will buy two put option (to support our bearish view) and we will buy 1 call option (to support our volatility view).

This strategy is termed as Strip Strategy. Here, we buy 2 Put option and 1 Call option of same expiry and exercise price.

Mr. Sagar has purchased a call option at a strike price of ₹ 200 and 2 put option at a strike price of ₹ 200. Premium of call option is ₹ 5 and of the put option is ₹ 3 per option. Prepare pay off table and graph

Pay-off Table

A	$B = \text{MAX}(A - 200, 0)$	$C = \text{Max}(200 - A, 0)$	D	$E = B + C + D$
Price on Expiry	1 Call Option	2 Put Option	Premium	Net Results
140	0	120	-11	109
160	0	80	-11	69
180	0	40	-11	29
190	0	20	-11	9
194.5	0	11	-11	0
200	0	0	-11	-11
210	10	0	-11	-1
211	11	0	-11	0
220	20	0	-11	9
240	40	0	-11	29
260	60	0	-11	49



Working Note:

Premium paid on Call	-5
Premium paid on Put (3 x 2 put)	-6
Net Premium	-11

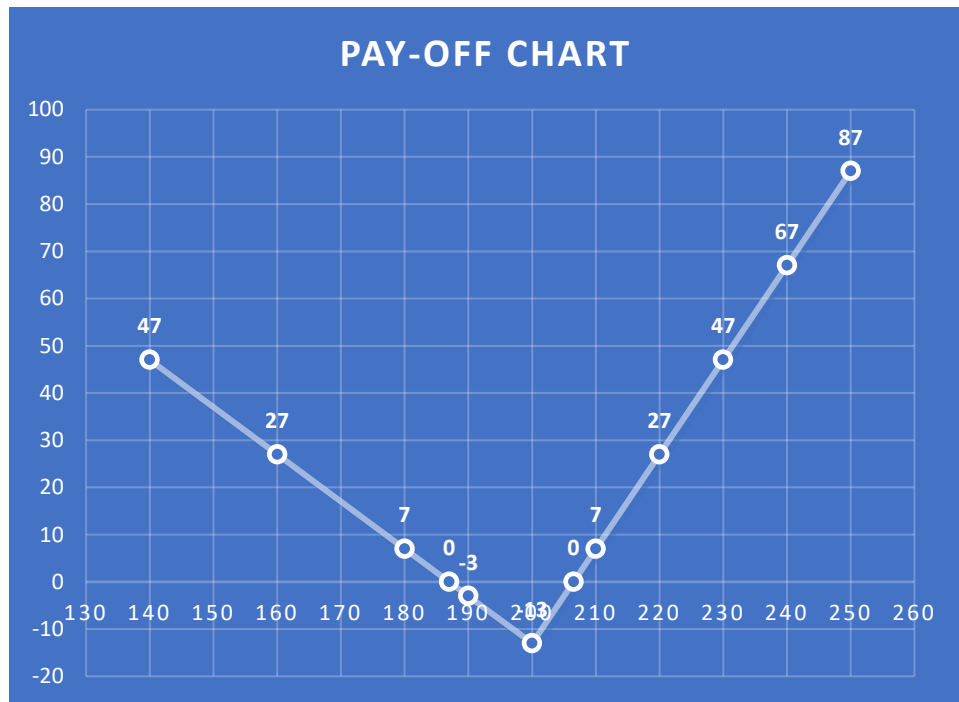
5. Anticipated Volatile Market but chances of Bullish is more

As seen earlier, when the market is bullish, we buy a call option, since the market is volatile, we will also buy a call option and a put option (as seen in the Strangle and Straddle Strategy). Since the market is more likely to be bullish, we will buy two call option (to support our bullish view) and we will buy 1 put option (to support our volatility view).

This strategy is termed as Strap Strategy. In this we purchase two call option and one put option of same expiry and exercise price.

Ms. Siddhi has purchased 2 call options at strike price of ₹ 200 and a put option at strike price of ₹ 200. Premium on call option is ₹ 5 and on the put option is ₹ 3. Prepare pay-off table and draw graph.

A	$B=2 \times \text{MAX}(A-200, 0)$	$C=\text{MAX}(200-A, 0)$	D	$E=B+C+D$
Price on Expiry	2 Call Option	1 Put Option	Premium	Net Results
140	0	60	-13	47
160	0	40	-13	27
180	0	20	-13	7
187	0	13	-13	0
190	0	10	-13	-3
200	0	0	-13	-13
206.5	13	0	-13	0
210	20	0	-13	7
220	40	0	-13	27
230	60	0	-13	47
240	80	0	-13	67
250	100	0	-13	87



Premium paid on Call (5 x 2 Call)	-10
Premium paid on Put	-3
Net Premium	-13

2.9 PUT CALL PARITY THEOREM

The Put-Call Parity Theorem is a fundamental principle in financial economics that defines a specific relationship between the prices of European put and call options with the same strike price and expiration date. It provides an important insight into how the value of these options is interconnected and is a cornerstone of options pricing theory.

Definition and Formula

The Put-Call Parity Theorem states that for European call (C) and put (P) options with the same strike price (K) and expiration date (T), the following relationship holds:

$$[C + PV(K) = P + S]$$

Where:

C is the price of the European call option.

P is the price of the European put option.

PV(K) is the present value of the strike price (K), discounted at the risk-free interest rate (r) over the time to maturity (T).

S is the current price of the underlying asset.

In a more expanded form, considering the present value of the strike price:

$$[C + \frac{K}{(1+r)^T} = P + S]$$

Intuitive Explanation

The theorem is based on the idea of arbitrage-free pricing. Arbitrage refers to the practice of taking advantage of a price difference between two or more markets. In an efficient market, arbitrage opportunities should not exist because they would be quickly exploited by traders, thus bringing prices into alignment.

Here's an intuitive way to understand Put-Call Parity:

Long Call + Present Value of Strike Price: Buying a call option and investing the present value of the strike price ensures that you can afford to buy the asset at the strike price if the call option is exercised.

Long Put + Underlying Asset: Buying a put option and owning the underlying asset guarantees that you can sell the asset at the strike price if the put option is exercised.

Both positions should provide the same payoff at expiration, ensuring that no arbitrage opportunity exists between them. If there were a discrepancy, arbitrageurs would exploit it, causing prices to adjust and restore the parity.

Practical Implications

Option Pricing: Put-Call Parity is used to derive the price of one option (put or call) given the price of the other.

Arbitrage Strategies: Traders can construct arbitrage strategies when the Put-Call Parity relationship is violated, although such opportunities are typically rare and short-lived.

Risk Management: It helps in hedging strategies and ensuring that the options and underlying assets are priced consistently.

Example

Suppose the current stock price (S) is ₹ 100, the strike price (K) is ₹ 100, the risk-free interest rate (r) is 5% per year, and the time to expiration (T) is 1 year. If the call option (C) is priced at ₹ 10, the present value of the strike price (PV(K)) is:

$$[PV(K) = \frac{100}{(1 + 0.05)^1} = \frac{100}{1.05} \approx 95.24]$$

Using Put-Call Parity:

$$[C + PV(K) = P + S]$$

$$[10 + 95.24 = P + 100]$$

$$[105.24 = P + 100]$$

$$[P = 5.24]$$

So, the price of the put option (P) should be approximately ₹ 5.24.

In conclusion, the Put-Call Parity Theorem is a vital concept in options pricing, ensuring that the prices of European put and call options remain in a logical and consistent relationship, thus preventing arbitrage opportunities.

Exercise:

Instructions: Choose the best answer for each question, based on the information provided in the notes.

1. Derivatives are financial instruments that derive their value from:
 - a) Options contracts only.
 - b) Underlying assets like commodities or stocks. (Correct)
 - c) Futures contracts only.
 - d) Speculation purposes.
2. Hedging with derivatives aims to:
 - a) Maximize profit from price movements.
 - b) Manage risk in the underlying asset. (Correct)
 - c) Exploit price discrepancies between markets.
 - d) Control large positions with minimal capital.
3. Which of the following is NOT a type of derivative?
 - a) Forward contract
 - b) Swap agreement
 - c) Cash advance (Correct)
 - d) Option contract
4. Futures contracts are standardized agreements to buy or sell an asset on a future date. They are traded on:
 - a) Over-the-counter markets.
 - b) Individual agreements between parties.
 - c) Stock exchanges only.
 - d) Regulated exchanges. (Correct)

5. A key feature of futures contracts is leverage. What does it allow?
 - a) Daily settlement of gains and losses.
 - b) Controlling a large position with a smaller capital outlay. (Correct)
 - c) Avoiding the need for physical delivery.
 - d) Speculation without risk of loss.
6. Futures contracts are marked to market daily. What does this mean?
 - a) The contract price remains fixed until the expiry date.
 - b) Positions are revalued daily based on current market prices. (Correct)
 - c) Settlement occurs only at the end of the contract.
 - d) Investors can avoid daily margin calls.
7. What is the main difference between a forward contract and a futures contract?
 - a) Futures contracts are shorter-term.
 - b) Forward contracts are exchange-traded. (Correct)
 - c) Futures contracts require daily settlement.
 - d) Forward contracts are more standardized.
8. Compared to forward contracts, futures contracts generally have:
 - a) Higher counterparty risk. (Correct)
 - b) Less regulation.
 - c) Lower liquidity.
 - d) Lower margin requirements.
9. What is the theoretical futures price determined by?
 - a) Historical price performance of the underlying asset.
 - b) The initial margin required for the contract.
 - c) A combination of spot price, carry costs, and time to expiration. (Correct)
 - d) The daily settlement price of the futures contract.
10. Index futures contracts allow investors to speculate on the direction of:
 - a) Individual stocks.
 - b) A financial index like the S&P 500. (Correct)
 - c) Interest rates.
 - d) Currency exchange rates.

11. What is the process of daily settlement of gains and losses in futures contracts called?
 - a) Margin call
 - b) Marking to market (Correct)
 - c) Delivery notice
 - d) Expiry
12. What is the minimum amount of funds an investor needs to maintain in a futures position to avoid a margin call?
 - a) Spot price of the underlying asset
 - b) Initial margin
 - c) Maintenance margin (Correct)
 - d) Theoretical futures price
13. Options contracts grant the holder the right, but not the obligation, to buy or sell an asset at a certain price by a certain date. Futures contracts, on the other hand, require:
 - a) No obligation to buy or sell.
 - b) Obligation to buy or sell at the expiry date. (Correct)
 - c) Daily settlement of price differences only.
 - d) Physical delivery of the underlying asset (optional).
14. Which of the following is NOT a benefit of using futures contracts?
 - a) Hedging price risk in the underlying asset.
 - b) Speculating on price movements of the underlying asset.
 - c) Increased portfolio diversification.
 - d) Earning guaranteed profits. (Correct)
15. What is the risk of futures contracts for speculators who incorrectly predict price movements?
 - a) Loss of initial margin only.
 - b) Potential for significant losses exceeding initial investment. (Correct)
 - c) Risk limited to the difference between strike and spot price (for options).
 - d) No risk of loss, only potential for gain.
16. What are the two most common methods for settling futures contracts?
 - a) Exercise and assignment (used for options contracts)
 - b) Cash settlement and delivery notice (Correct)
 - c) Margin call and expiry notification
 - d) Rollover and early termination

17. In futures contracts, what cost is included in the theoretical futures price to account for holding the asset until expiry?
- a) Transaction fees
 - b) Carrying costs (storage, interest, etc.) (Correct)
 - c) Brokerage commission
 - d) Dividends expected during the contract period
18. What is the main purpose of margin requirements in futures contracts?
- a) To guarantee profits for successful speculations.
 - b) To ensure sufficient funds are available to meet potential losses. (Correct)
 - c) To cover administrative costs associated with the contract.
 - d) To discourage excessive leverage in the market.
19. What happens when an investor receives a margin call on a futures position?
- a) The contract is automatically liquidated.
 - b) The investor must deposit additional funds to meet the maintenance margin. (Correct)
 - c) The expiry date of the contract is extended.
 - d) The investor receives a guaranteed profit on the position.
20. How does daily marking to market impact the cash flow of an investor holding a futures contract?
- a) It has no impact on cash flow, only reflects price changes.
 - b) It requires daily cash settlements for any price movements. (Correct)
 - c) It triggers a margin call only if the price moves against the investor.
 - d) It allows investors to defer settlement until the contract expires.

INVESTMENT MANAGEMENT

Unit Structure:

- 3.0 Learning Objectives
- 3.1 Introduction to Investment
- 3.2 Objectives of Investment
- 3.3 Need and Importance of Investment
- 3.4 Investor & its types
- 3.5 Philosophy of Investor
- 3.6 Investor Opportunity
- 3.7 Summary

3.0 LEARNING OBJECTIVES

After studying this lesson you are able to:

- Understand the meaning of Investment.
- Learn about Objectives and Types of Investment and Investors.
- Know about different investor opportunity

3.1 INTRODUCTION

A person will be earning and spending money throughout his life. Most of the times, there are imbalances between the earnings and spending of a person. This imbalance will lead a person either to borrow or to save to capitalize the long run benefits from the income.

When current income is more than current consumption, people tend to save the excess money. One option is to save the money in the cupboard until some future time when consumption exceeds current income or another option is that a person can give up the present possession of this money for a further larger amount of money that will be available for future consumption. Money does not have any value unless it is invested. This trade-off of present consumption for future consumption is the reason for savings. When the savings are made to make them increase over time is called investment. Money has to be invested in some financial asset to get a return. It is assumed that a person is risk averse and simultaneously he expects a good return on the money that he invests.

Investment is the sacrifice of some present value for the uncertain future reward. An investment decision is a trade-off between risk and return. All investment choices are made in accordance with the personal investment ends in contemplation of an uncertain future.

The term investment has many facets and is used in many fields like management, finance, economics etc. but we will be strictly sticking ourselves to the meaning that is about keeping in mind the financial market.

Warren Buffet, one of the most respected investors all around the world and CEO & Chairman of one of the world famous Investment Company Berkshira Hathway has opined that if a person invests money in the market with even a hint of thought of selling it once the price rises is not at all an investment.

For example, A person purchases shares of Tejas Network company worth 10000/- intending to hold them for a long term and expecting at least Rs. 50 dividends on them.

An investment is said to be genuine if it has been made keeping in mind certain expected rate of return in mind. In the above case, if that person had just taken the Tejas Network share without expecting the dividends then it is not a genuine investment.

There are three things that compensate the investor collectively from the Expected rate of Return such as : 1) Time 2) Inflation 3) Uncertainty

The first one is the time for which the funds are committed. Let's think that Mr. Akash has lot of excess money and he does not know what to do with that so he just digs a hole on the floor of his home and buries all the excess money for two years and after two years he takes money and it should not be surprising for him to find out that amount has not changed. It is just to show that if he had invested the same thing like markets or banks or post offices then he would have received some rate of interest and this is called as pure rate of interest.

Second one is rate of inflation. Just think that you have 100 rupees now in your pocket and with that you can buy 2 kg of sugar but instead of that you choose to invest it in market for one year. There is something called as inflation which changes the purchasing value whenever there is fluctuation in its value so if the inflation rate is % per annum you would definitely expect the investment that you have done in the market to give you a return of 4 rupees so that you can buy the same 2kg of sugar after one year. This is called as nominal rate of interest and it is the sum of pure rate of interest and compensation for inflation.

The third and the last one is uncertainty of the future payments. The payments that we are expecting are uncertain. Hence, the risk element is involved and the investors are ready to take that risk and in return they expect something called as risk premium. Risk premium is nothing but the risk free returns plus extra returns for risk.

3.3 DEFINITION

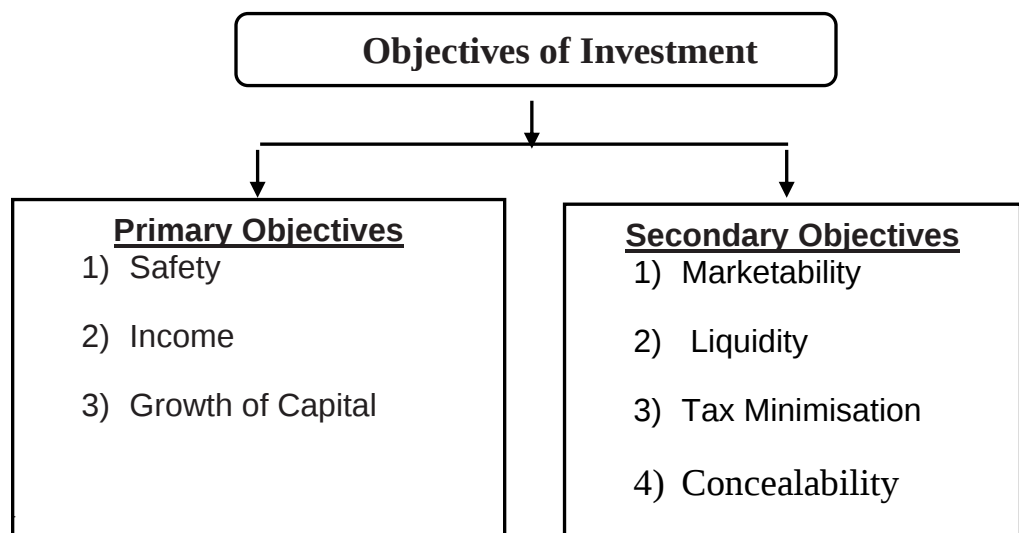
“An investment operation is one which, upon thorough analysis, promises safety of principal and an adequate return. Operation not meeting these requirements are speculative.”

- By Graham and Qadd’s Security Analysis,

“Investment management is the process of managing money including investments, budgeting, banking and taxes, also called as money management.”

3.4 OBJECTIVES OF INVESTMENT

When a person earns more than he spends, he has surplus money. When the money is saved, it is kept in the form of cash and will be readily available for use at any point of time. But the money kept as cash remains stagnant and does not grow it is because money has not been put into use. When the money saved is put into some form of use, then it starts earning and the owner get the return on it. A person who has surplus money is prone to invest the same in some assets with the view to earn some return. There is no guarantee on the money invested as it depends on the type of the investment made and the risk level associated with it. There are different types of assets available for investment with different risk-return characteristics and the investor will choose the assets which offers him higher return for the level of risk he is prepared to take.



Primary Objectives

The options for investing our savings are continually increasing, yet every single investment vehicle can be easily categorised according to three fundamental characteristics – safety, income and growth which also correspond to type of investor objectives. While it is possible for an investor to have more than one of these objectives, the success of one must come at the expense of others.

1. **Safety:** - Perhaps, there is truth to the axiom that there is no such thing as a completely safe and secure investment. Yet, we can get close to ultimate safety for our investment funds through the purchase of government issued securities in stable economic systems, or through the purchase of the highest quality corporate bonds issued by the economy's top companies. Such securities are arguably the best means of preserving principle while receiving a rate or return.

The safety investment are usually found in the money market and include such securities as Treasury bills (T-bills), Certificate of Deposits (CD), Commercial Paper or in the fixed income bonds market in the form of municipal and other government bonds, and in corporate bonds. The securities listed above are ordered according to the typical spectrum of increasing risk and, in turn, increasing potential yield. To compensate for their higher risk, corporate bonds return a greater yield than T-bills.

2. **Income:** - The safety investment are also the ones that are likely to have the lowest rate of income return or yield. Investors must inevitably sacrifice a degree of safety if they want to increase their yields. This is the inverse relationship between safety and yield; as yield increases, safety generally goes down, and vice versa.

In order to increase their rate of investment return and take on risk above that of money market instruments or government bonds, investors may choose to purchase corporate bonds or preferred shared with lower investment ratings. Investment grade bonds rated at A or AA are slightly riskier than AAA bonds, but presumably also offer a higher income return than AAA bonds.

Most investors, even the most conservative minded ones, want some level of income generation in their portfolios, even if it's just to keep up with the economy's rate of inflation. But maximizing income return can be an overarching principle for a portfolio, especially for individuals who require a fixed sum from their portfolio every month.

For Example: A retired person who requires a certain amount every month, is well served by holding reasonably safe assets that provide funds over and above their income generating assets, such as pension plans

3. **Growth of Capital:** - Growth of Capital is most closely associated with the purchase of common stock, particularly growth securities, which offer low yields but considerable opportunities for increase in value. For this reason, common stock generally ranks among most speculative of investments as their return depends on what will happen in an unpredictable future. Blue- chip stocks, by contrast, can potentially offer the best of all worlds by possessing reasonable safety, modest income and potential for growth in capital generated

by long term increase in corporate revenues and earnings as the company matures. Yet, rarely is any common stock able to provide the near absolute safety and income generation of government bonds.

Secondary Objectives

1. **Tax Minimisation:** An investor may pursue certain investments in order to adopt tax minimisation as part of his or her investment strategy. A highly paid executive wants to seek investments with favourable tax treatment in order to lesser his or her overall income tax burden.
2. **Liquidity:** - Liquidity refers to an investment ready to convert into cash position. In other words, it is available immediately in cash form. Liquidity means that investment is easily realisable, saleable or marketable. When the liquidity is high, then the return may be low. For example, UTI units. An investor generally prefers liquidity for his investments, safety of funds through a minimum risk and maximisation of return from an investment.
3. **Marketability:** - Marketability refers to buying and selling of Securities in market. Marketability means transferability or saleability of an asset. Securities are listed in a stock market which are more easily marketable than which are not listed. Public Limited Companies shares are more easily transferable than those of private limited companies.
4. **Concealability:** -Concealability means investment to be safe from social disorders, government confiscations or unacceptable levels of taxation, property must be concealable and leave no record of income received from its use or sale. Gold and precious stones have long been esteemed for these purposes, because they combine high value with small bulk and are readily transferable.

4.5 NEED AND IMPORTANCE OF INVESTMENTS

An investment is an important and useful factor in the context of present day conditions. Some important factors are :

- **Longer life expectancy or planning for retirement**

Investment decisions have become more significant as most people in India retire between the ages of 58 to 60 and so, they are planned to save their money. Saving by themselves do not increase wealth, saving must be invested in such a way that the principal and income will be adequate for a greater number of retirement years. Longer life expectancy is one reason for effective saving and further investment activity that help for investment decisions.

- **Increasing rates of taxation**

When tax rate is increased, it will focus for generating saving by tax payer. When the tax payer invest their income into provident fund,

pension fund, Unit Trust of India, Life Insurance, Unit Linked Insurance Plan, National Saving Certificates, Development Bonds, Post Office Cumulative Deposit Schemes etc. it affects the taxable income.

- **High interest rates**

Interest rate is one of the most important aspects of a sound investment plan. The interest rate differs from one investment to another. There may be changes between degree of risk and safe investments. They may also differ due to different benefit schemes offered by the institutions. A high rate of interest may not be the only factor favouring the outlet for investment. Stability of interest is an important aspect of receiving a high rate of interest.

- **High rate of inflation**

Inflation has become a continuous problem. It affects in terms of rising prices. Several problems are associated and coupled with a falling standard of living. Therefore, investor careful scrutiny of the inflation will make further investment process delayed. Investor ensures to check up safety of the principal amount and security of the investment. Both are crucial from the point of view of the interest gained from the investments.

- **Larger incomes**

Income is another important element of the investment. When government provides jobs to the unemployed persons in the country, the ultimate result is ensuring of income than saving the extra income. More incomes and more avenues of investment have led to the ability and willingness of working people to save and invest their funds.

Investment Channels

The growth and development of the country leading to greater economic prosperity has led to the introduction of a vast areas of investment outlets. Investment channels means an investor is willing to invest in several instruments like corporate stock, provident fund, life insurance, fixed deposits in the corporate sector and unit trust schemes.

4.6 INVESTOR

“A person whose principal concern in the purchase of a security is the minimizing of risk, compared to the speculator who is prepared to accept calculated risk in the hope of making better-than-average profits, or the ‘gambler’ who is prepared to take even greater risks. More generally it refers to people who invest money in investment products.”

“An individual who makes investments. An investor can act on behalf of others, for example, stock brokers or mutual fund managers make investments for others. Or else an investor can make investments

Types of Investors

Investors are mainly of two types:

❖ **Individual Investors**

Individual Investor are individuals who invest their funds into financial assets. They are in mass. Each individual will have comparatively smaller amount of investible surplus. Majority of individual investors lack the knowledge and skills required to carry out analysis of the investment opportunities available in the market.

❖ **Institutional Investors**

Institutional investor are institutions that mobilize money from individuals and other sources and invest them in financial assets. Mutual Funds, Insurance Companies, Investment Companies, Banks, NBFCs, Financial Investment etc., are institutions who invest their surplus funds. They engage professionals to manage their investment and to carry out extensive analysis for making investments and continuously monitoring the performance of the investments. Such professionals are also responsible for corrective decisions and alteration of investment whenever it is required. Institutional investors are better equipped to maximise their return and minimise their risk.

Philosophy of Investor

• **Safety Players**

Safety Players who take the path of least resistance, looking primarily for security and safety in their investments and doing what has worked previously.

• **Entrepreneurs**

Entrepreneurs are a particularly male-dominated profile driven by a passion for excellence and commitment, and who are not motivated by money in itself. Financial success is a scorecard and stock investment is a method of implementing and demonstrating that success.

• **Optimists**

Optimists are non-risk oriented, often near retirement, seeking peace of mind, these are investors who don't like to become too involved with their own financial management as it would cause them stress and reduce their enjoyment of life.

- **Hunters**

Hunters are often educated, high-earning women with an impulsive streak, a 'live now attitude.' They have a strong work ethic, much like entrepreneurs, but lack the same confidence in themselves. They may attribute their success to luck rather than ability.

- **Achievers**

Achievers are conservative, risk-averse, these investors like to feel in control of their money, with security and protection of their assets a primary consideration. They are often, married, well educated, high-earners who feel that hard work and diligence is more likely to bring financial reward than investing.

- **Perfectionists**

Perfectionists are afraid of making financial mistakes, they tend to avoid investment decisions altogether. They lack confidence and self-esteem, and have low pride in handling financial matters, finding every conceivable excuse for not taking action. For them no investment is without fault.

- **Producers**

Producers are highly committed to their work. They may earn less due to a lack of self-confidence in money management. And with a lack of basic financial knowledge they may have less available funds to invest. They do not appreciate how to evaluate risk appropriately.

- **High Rollers**

High Rollers are thrill seekers, power seekers, creative and extroverted; they work hard and play hard. They have to be involved in high risk investing with a large amount of their assets. Financial security bores them - even though their actions may have financially dangerous consequences.

- **Money Masters**

Money Masters are tending to have a balanced financial outlook that gives contentment and security; these investors like to be involved with the management of their money and their choice of investments, although they will take onboard good, sound advice. They are determined individuals, not easily thrown of their chosen course, and who don't leave things to luck.

- **Adventurers**

Adventurers are confident 'go for' and ready to take chances.

- **Celebrities**

Celebrities are those who need to be in the center of things and don't like to be left out, often constantly checking whether they should be in the latest fashionable investment but may not really have any clue as to how to take control of their finances.

- **Individualists**

Individualists are confident individuals who make their own decisions but who are methodical, careful, balanced and analytical.

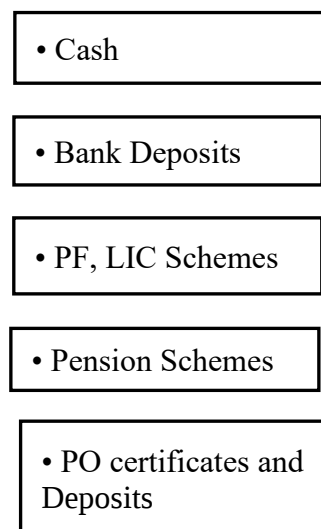
- **Guardians**

Guardians are investors, often older ones, who are cautious and intent on safeguarding their wealth, shunning volatility or excitement.

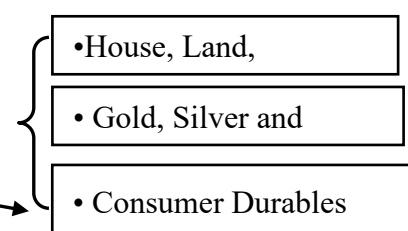
4.7 INVESTMENT OPPORTUNITIES

Investment activity includes buying and selling of the financial assets, physical assets and marketable assets in primary and secondary markets. Investment activity involves the use of funds or savings for further creation of assets or acquisition of existing assets.

I. Financial Assets

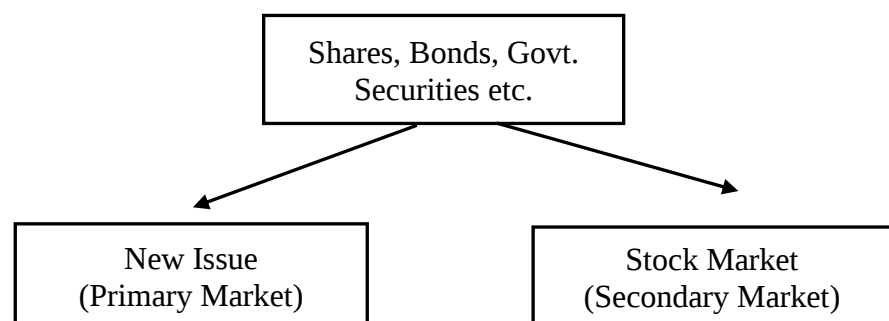


II. Physical Assets



Investor

III. Marketable Assets



A. Classification of Investment

On the Basis of Physical Investments

Physical investments are:

- House
- Land
- Building
- Gold and Silver
- Precious stones

On the Basis of Financial Investment

Financial investments further classified on the basis of:

i) Marketable and Transferable investments

Marketable investments are: 3

- Shares (Equity Shares & Preference Shares)
- Debentures of Public Limited Companies, particularly the listed company in Stock Exchange
- Bonds of Public Sector Units Government Securities, etc.

ii) Non-Marketable Investments

Non-marketable investments are:

- Bank Deposits
- Provident and Pension Funds
- Insurance Certificates
- Post office Deposits
- National Saving Certificates
- Company Deposits
- Private Companies Shares etc.

B. Modes of Investment

Modes of investment consist of:

- Security Forms of Investment
- Non-Security Forms of Investment/Non-Marketable Investment Security

Forms of Investment :

i) Security forms of investment includes the following:

- Corporate Bonds/Debenture
 - (a) Convertible
 - (b) Non-Convertible
- Public Sector Bonds
 - (a) Taxable
 - (b) Tax Free
- Preference Shares
- Equity Shares
 - (a) New Issue
 - (b) Rights Issue
 - (c) Bonus Issue

ii) Non-Security Forms of Investment (non transferable)

Non-security forms of investment as outlined below:

- National Savings Scheme
- National Savings Certificates
- Provident Funds
 - (a) Statutory Provident Fund
 - (b) Recognised Provident Fund
 - (c) Unrecognised Provident Fund
 - (d) Public Provident Fund
- Corporate fixed deposits
 - (a) Public Sector
 - (b) Private Sector
- Life insurance policies
 - (a) Whole Life Policies
 - (b) Limited-payment Life Policy
 - (c) Convertible Whole Life Assurance Policy
 - (d) Endowment Assurance Policy
 - (e) Jeevan Mitra
 - (f) The Special Endowment Plan with Profits
 - (g) Jeevan Saathi

- (h) The New Money Back Plan
- (i) Marriage Endowment/Educational Annuity Plan with Profits
- (j) Bima Sandesh Premium Back Term Insurance Plan
- (k) New Children's Deferred Assurance Plan
- (l) Jeevan Dhara
- (m) New Jana Raksha Plan with Profits
- (n) Jeevan Akshay Plan
- (o) Jeevan Balya Plan
- (p) Jeevan Kishor
- (q) Jeevan Griha
- (r) Jeevan Sarita and Others
- Unit schemes of Unit Trust of India (Some are marketable among these)
 - (a) Unit Scheme, 1964
 - (b) Reinvestment Plan, 1966
 - (c) Unit Linked Insurance Plan, 1971
 - (d) Capital Gains Unit Scheme, 1983
 - (e) Children's Gift Growth Funds, 1986
 - (f) Parent's Gift Growth Funds, 1987
 - (g) Monthly Income Unit Scheme with Extra Bonus Plus Growth
 - (h) Master Shares
 - (i) Master Gains
 - (j) Equity Linked Savings Scheme
 - (k) Growing Monthly Income Unit Scheme
 - (l) Master share Plus etc.
- Post Office Savings Bank Account
 - (a) Recurring Deposits
 - (b) Time Deposits
 - (c) Monthly Income Scheme
 - (d) Social Security Certificates
- Others
 - (a) Rahat Patras or Relief Bonds
 - (b) Kisan Vikas Patra
 - (c) Deposits in Co-operative Banks
 - (i) Recurring deposits
 - (ii) Time deposits, etc.

4.8 SUMMARY

The purpose of this unit is to provide background that can be used in subsequent chapters. To achieve that goal, we covered several topics:

- We discussed why individuals save part of their income and why they decide to invest their savings. We defined investment as the current commitment of these savings for a period of time to derive a rate of return that compensates for the time involved, the expected rate of inflation, and the uncertainty.
- We discussed the objectives of investment in which we studied the primary objectives and secondary objectives of investment and also explained the importance of investment.
- We considered the term 'Investor', explained the types of investor and the philosophy of investors.
- We discussed the different opportunities of Investment, Classification of Investment and Modes of Investment.

4.9 REVIEW QUESTIONS:

1. Define the term Investment. Explain the objectives of Investment
2. What is Investment? Explain the importance of Investment
3. Who is Investor? Discuss the Philosophy of Investor
4. Discuss the different opportunities for Investor.



SECURITIES ANALYSIS

Unit Structure:

- 4.0 Objectives
- 4.1 Introduction
- 4.2 Meaning of securities
- 4.3 Characteristics and Structure of Securities Market
- 4.4 Capital Market
- 4.5 New Issue Market
- 4.6 Dematerialization
- 4.7 Equity Research and Valuation
- 4.8 Sources of Financial Information
- 4.9 Industry Analysis
- 4.10 Company Analysis
- 4.11 Valuation of Equity Shares
- 4.12 Summary
- 4.13 Unit End Questions
- 4.14 Suggested Readings

4.0 OBJECTIVES

The main purpose of this chapter is –

- To explain the meaning of securities
- To understand the characteristics and structure of Securities
- To discuss the various types of Securities
- To explain Capital Market
- To describe New Issue Market
- To understand Dematerialization
- To discuss the Sources of financial information
- To understand Industry analysis
- To describe company analysis
- To explain Valuation of Equity shares

4.1 INTRODUCTION

In every economic system, some organisations or individuals can produce surpluses while others can produce deficits. Units that produce surpluses are known as savers, whereas those that produce deficits are known as spenders. At the spectral level, homes in our nation are surplus-producing when businesses and the government are running deficits. However, this is only accurate on an overall scale. You will undoubtedly come across both business entities that generate surpluses and individual families that generate deficits.

What the surplus-generating units do with their surpluses or saves is the question that emerges in this situation. As you can see, they only have two options available to them. They have the option of investing their savings or keeping them as cash on hand. For transactional, preventative, or speculative requirements, liquid cash must be held. The units that produce excess could make investments in a variety of ways. They might invest in tangible assets like land, buildings, machinery, and precious metals like gold and silver. They may also invest in financial assets like shares and debentures, Unit Trade India units, treasury bills, commercial paper, and other types of paper.

A capital market is a place where governments and commercial businesses (companies) can raise long-term capital and trade securities (both debt and equity). It is described as a market where money is lent for periods longer than a year because other markets are used to raise short-term capital (e.g., the money market).

4.2 MEANING OF SECURITIES

Any financial asset that can be traded is considered to be a security. The characteristics of what can and cannot be classified as securities typically depend on the legal system of the country where the assets are exchanged.

The exchange markets are where securities are traded. The legal definitions of the term, which primarily classify equities and fixed income as securities, differ from the common understanding that it applies to all sorts of financial instruments.

However, securities can also be notes, swaps, warrants, mutual funds, interest-bearing Treasury bills, and debentures. Additionally, participation in oil drilling initiatives is regarded as a security. The issuer of the security is the legal entity that issues the security.

The degree of inherent risk in various securities varies. For instance, while some stocks are riskier than others, overall stocks are thought to be riskier than bonds. An investor chooses the appropriate securities in accordance with the level of risk he wishes to accept. Furthermore, the degree of liquidity varies among securities. Because investors can enhance the price of these assets by purchasing additional securities and obtaining a better return on investment, highly liquid securities including bonds, stocks, and

money market instruments are traded more often.

Definition: Securities are negotiable financial instruments issued by a company or government that give ownership rights, debt rights, or rights to buy, sell, or trade an option.

4.3 CHARACTERISTICS AND STRUCTURE OF SECURITIES MARKET

- The terms of the exchange of money between two parties—in this case, the buyer and the seller—are expressed by securities.
- Borrowers and equity funders can issue securities to raise funds at a fair price and grant investors ownership of the securities.
- Businesses use a regulated contract and a controlled and supervised method to issue securities to investors with excess capital to raise money.
- Investors have a right to the rights represented by the securities, even though the terms of the capital raise are determined by the security's issuer.
- Securities can be broadly divided into two categories: debt and equity (risk participation) (claim on cash flows).
- Equity securities are issued forever, whereas debt securities are issued for a specified time period. While equity pays dividends, it is not guaranteed, debt securities pay interest.

Structure of Securities Market

- The term "primary market" describes the area of the market where corporations issue securities as either a new issue or an offer for sale. Both equities and debt securities have an initial public offering (IPO) market.
- The secondary markets are where these securities are really traded. Eventually, primary debt and equity issues are traded in the secondary market to determine prices. The primary trading market is the secondary market.
- Futures and options are traded in the derivatives market. Derivatives, which are only contracts and are used to control the risk inherent in the security, contrast equities, which denote ownership. Derivative contracts are a trading option for traders.

4.4 CAPITAL MARKET

The capital market refers to the marketplace where investment funds like bonds, shares, and mortgages are traded. The capital market's primary function is to direct investments from investors with surplus funds to those who are experiencing a shortfall. The capital market provides both overnight and long-term funds. The market for securities known as the capital market is where businesses and governments can raise long-term

financing. It is a market where loans for terms greater than a year are made.

Equity instruments, credit market instruments, insurance instruments, foreign currency instruments, hybrid instruments, and derivative instruments are only a few of the capital market instruments utilised for market trade. In order to profit from their respective markets, investors use these.

All of these are referred to be capital market instruments because they generate money for businesses, corporations, and occasionally national governments.

Because long-term funds are raised through trading on debt and equity securities, this market is often referred to as the securities market. Both businesses and governments may carry out these actions.

The primary market and secondary market make up the capital market. Newly issued bonds and stocks are traded in the primary market, and existing bonds and stocks are bought and sold in the secondary market.

Bond market and stock market are two common categories of the capital market.

Bond Market offers finance through the issue and trading of bonds.

- By issuing shares or stock and through share trading, the stock market offers financing.
- Capital Market as a whole makes it easier to raise money by exchanging long-term financial assets.

4.5 NEW ISSUE MARKET

The primary capital market is another name for the New Issue Market, or NIM. In this market, newly-introduced securities are offered for sale to the general public for the first time. As the money obtained from this market offers long-term funding, it is often referred to as the "long-term debt market."

Business entities may raise money in the primary market through a private placement, rights issue, or initial public offering. Selling securities to the general public on the primary market is known as an initial public offering (IPO). This initial public offering may be conducted using either the book-building method, the fixed price method, or both methods combined.

According to SEBI standards, an issuer company may opt to issue securities in the following ways if the issuer chooses to go the book-building path to do so:

1. The entire net offer made to the general public via the book-building method
2. Through the book-building process and 25% of the fixed price portion, the public will receive 75% of the net offer.

The new issue market and stock exchange make up India's industrial securities markets. The new issue market deals with new securities that have never before been offered to the investing public, or securities that are issued for the first time. As a result, the market makes a fresh block of securities available for public subscription. In other words, the new issue market is concerned with how corporations raise new capital for cash or for something other than cash.

The market for new issues includes every institution engaged in handling new claims. These claims are made in the forms of equity shares, preference shares, debentures, rights issues, deposits, etc. The new issue markets include all financial institutions that contribute, underwrite, and directly subscribe to the securities.

4.6 DEMATERIALIZATION

The technique of dematerialization allows a client to turn their physical certificates into electronic balances. An investor must have an account with a DP if they plan to dematerialize their securities. The client is required to deface and turn over to the DP any certificates registered in its name. After electronically notifying NSDL, the DP transmits the securities to the relevant Issuer/R&T agent.

The market microstructure of Indian stock exchanges has evolved significantly as a result of dematerialized securities trading, settlement, and custody. An investor would typically choose a stock with greater liquidity to one with less. Lower transaction costs and simpler entrance and exit options are associated with more liquidity. Higher liquidity is therefore preferable. Ownership transfers for demat shares happen relatively rapidly. The ability of investors to frequently churn their portfolios would improve turnover and liquidity.

Physical (paper) shares are unquestionably inferior to dematerialized shares. Problems with counterfeit, forgeries, theft, and duplication plague physical shares. According to logic, there should be more demand for demat shares, which is anticipated to drive up (and, to a lesser extent, drive down) share prices and produce larger profits (and, conversely, less loss) for investors compared to the predemat time. This increased demand will remain for a while (the adjustment period may last for a few months) only.

4.7 EQUITY RESEARCH AND VALUATION

Equity research is the process of analyzing and valuing stocks, and it involves examining a company's financial statements, industry trends, and macroeconomic factors to determine the intrinsic value of its shares. The

purpose of equity research is to provide investors with information to help them make informed investment decisions.

Valuation is an important part of equity research, and it involves determining the intrinsic value of a company's shares based on its financial statements, market conditions, and other relevant factors.

4.8 SOURCES OF FINANCIAL INFORMATION

In security analysis, sources of financial information can be divided into two categories: primary sources and secondary sources.

Primary sources of financial information for security analysis include:

- **Company financial statements:** Financial statements such as the income statement, balance sheet, and cash flow statement can provide detailed information about a company's financial performance, liquidity, and solvency.
- **Annual reports:** Publicly traded companies are required to publish annual reports that provide detailed information about their business operations, financial performance, and strategic plans.
- **SEC filings:** Companies are required to file various reports with the Securities and Exchange Commission (SEC), such as 10-K and 10-Q filings, which provide detailed financial and non-financial disclosures.
- **Company presentations:** Some companies may provide presentations to investors that offer additional insights into their financial performance and strategic plans.

Secondary sources of financial information for security analysis include:

- **Financial news websites:** Websites like Bloomberg, Reuters, and CNBC can provide up-to-date financial news and analysis.
- **Investment research reports:** Research reports from investment banks, brokerage firms, and independent research providers can provide analysis and recommendations on specific companies or industries.
- **Market data providers:** Companies like S&P Global Market Intelligence and FactSet provide financial data, news, and analysis.
- **Financial databases:** Databases such as Bloomberg Terminal and Refinitiv Eikon provide real-time financial data and analytics.
- **Trade publications:** Industry-specific trade publications can provide information on market trends, new product developments, and industry-specific financial metrics.
- **Social media:** Platforms like Twitter, Reddit, and LinkedIn can provide valuable insights and perspectives on financial news and trends.

It's important to use a combination of primary and secondary sources of financial information and verify the accuracy of the information before making any investment decisions.

The performance of the industry depends on many factors one of them is industry life cycles which involve various stages of where an industry performs. For example, the biotechnology industry which is still new, so the investors may find many firms giving higher rate of returns and seeing that the investment rate also increases in those firms. Whereas the older industry like the public utility gives the lower rate of return and hence gets lower rate of investment in their firms.

As the biotechnology industry is new so they are able to use their best technology available that create greater opportunities for investments in resources that are highly profitable. Also, their new products are protected by patents and so their profit margins are high. Since they have investment opportunities are highly lucrative so they plough back their profits into the firm so as to increase greater profits. But with time, profit will reduce as seeing more profit in this industry more firms will be attracted and so the more competition will reduce the profit margin. This will further lead to slow growth and then finally leads to negative growth in the industry.

So, this analysis shows the industry life cycle is divided into four stages:

1. Start-up stage:

In this stage, the industry is characterized by growth that increases rapidly because of new technology and product such as personal computer in 1980s and personal phones in 1990s. It is unpredictable to analyse which firm will perform better in the long run and which will be successful and which firms in that industry will become the industry leader.

2. Consolidation stage:

When the product becomes established, emergence of the industry leader begins to arise. The firms that survive in the start-up stage are more stable, and also its prediction of market share also becomes easier in this stage. Also, the performance of firms that could survive starts matching to the overall performance of the industry. At this stage, the industry still seems to be faster growing because the products become commonly used and also products penetrate the marketplace.

3. Maturity stage:

At this stage, the products reach its full potential for use by its consumers. Also, here the profits margin becomes small, with slow sales, price competition increases considerably, market penetration become high and also little opportunity to expand further.

4. Relative Decline:

In this stage, the industry might start to shrink or grow at lower rate than the overall economy. This is due to obsolescence in products, competition in new markets and low-cost suppliers.

4.10 COMPANY ANALYSIS

After analyzing the economic and industry conditions, the financial health of the company is analysed by the investors. For this investor analyse the financial statements of the company, where they can easily calculate the ratios of the company that can be categorized into price, profitability, leverage, efficiency, and liquidity. The ratio analysis is performed on the ratios that are easily comparable within the similar or the same industries.

The some of the ratios from each category those are essential at the time of analysis are stated below:

1. P/E Ratio:

The price/earnings ratio is a price ratio which is calculated by dividing stock price of the current period with the earning per share of previous four quarters.

For example:

Current Stock price = Rs 20

Earnings per share of last four quarters = Rs.2

P/E Ratio = Rs. 20/ Rs. 2

= Rs. 10

The investor's expectation of future performance affects the determination of the current price to earnings ratio of the company. The investors use the approach to compare the P/E ratio of companies within the same industry. Companies with lower P/E ratio are better when everything else remain same.

2. Net Profit Margin:

It is the profitability ratio that is calculated by dividing net income by total sales of a company. It indicates how much profit a company is able to earn out of the sales of the company.

Net Profit Margin = Net Profit / Total Sales

3. Book Value per Share

It is the price ratio that is calculated by dividing total net assets (assets minus liabilities) by total outstanding shares of the company. It is the good method to check if the stock is under priced or overpriced. If the stock is selling at a price that is below the book value, then the security is under-priced.

4. Current Ratio:

It is the liquidity ratio which is calculated by dividing current assets by current liabilities of a company. It tells the investor that whether the company is able to meet its current debt obligations or not. If the ratio is

more than 2:1 then it is said that the company is liquid. If the company has the current ratio 3:1 then this means the current assets of that company is sufficient to pay three times the current liabilities of a company.

Current Ratio = Current Assets / Current liabilities

5. Debt Ratio:

It is a leverage ratio which is calculated by the dividing total liabilities by total assets. It tells how much total assets are financed with the debt. If the ratio is 30% then it is said that 30% of assets are financed by the borrowed funds and rest through another source of finance. When the economy is in stress or there is the hike in interest rates, then the companies with high debt ratio have to bear financial problems. But in good times, the higher debt ratio helps in increase the profitability of companies by financing growth at low cost.

Debt Ratio = Total Debt / Total Assets

5. Inventory Ratio:

It is an efficiency ratio that is calculated by dividing total cost of goods sold by the average inventory. It tells the investor how the inventories are managed by telling how many times the inventories are replaced or turn over. This ratio depends on the nature of industry the company falls in and also it is important to compare the ratio between the companies in the same industry.

Inventory Ratio = Total Cost of Goods Sold / Average inventory

4.11 VALUATION OF EQUITY SHARES

The valuation of equity shares involves estimating the intrinsic value of a company's stock based on various financial and non-financial factors. Here are some commonly used methods for valuing equity shares:

- Discounted Cash Flow (DCF) analysis: This method estimates the present value of a company's future cash flows by discounting them back to their present value using a discount rate. The DCF analysis is based on a company's expected future cash flows, growth rates, and risk factors.
- Price-to-Earnings (P/E) ratio: The P/E ratio is calculated by dividing the company's current stock price by its earnings per share (EPS). This method compares the company's current stock price to its earnings and can be used to compare the valuation of the company to its peers.
- Price-to-Book (P/B) ratio: The P/B ratio is calculated by dividing the company's current stock price by its book value per share. The book value per share is the total assets minus liabilities divided by the number of outstanding shares. This method compares the company's current stock price to its book value and can be used to compare the valuation of the company to its peers.

- **Dividend Discount Model (DDM):** The DDM estimates the intrinsic value of a company's stock based on the present value of its future dividends. The model assumes that the company will continue to pay dividends in the future and that the dividends will grow at a constant rate.
- **Free Cash Flow (FCF) to Equity:** This method estimates the intrinsic value of a company's equity shares based on its free cash flow to equity, which is the amount of cash that is available to the company's equity shareholders after all expenses and investments are made. This method focuses on the company's ability to generate cash and can be used to compare the valuation of the company to its peers.

It is important to note that no single valuation method is perfect, and different methods may produce different results. It is important to consider multiple factors and use a combination of valuation methods to arrive at a more accurate estimate of a company's intrinsic value.

4.12 SUMMARY

- A capital market is a place where governments and commercial businesses (companies) can raise long-term capital and trade securities (both debt and equity).
- Debt securities, such as bonds and certificates of deposit, typically require the holder to pay periodical interest payments, the principal amount owed, as well as any other contractual obligations that may be specified.
- Equity instruments, credit market instruments, insurance instruments, foreign currency instruments, hybrid instruments, and derivative instruments are only a few of the capital market instruments utilised for market trade.
- The institutions that trade in new claims are all included in the new issue market.
- Equity shares, preference shares, debentures, rights issues, deposits, etc. are the forms in which these claims are generated.
- The new issue markets include all financial institutions that contribute, underwrite, and directly subscribe to the securities.
- Physical (paper) shares are unquestionably inferior to dematerialized shares. Problems with counterfeit, forgeries, theft, and duplication plague physical shares.
- Industry and company analysis are two important components of equity research that help investors make informed investment decisions.

- Industry analysis involves examining the trends, competitive landscape, and macroeconomic factors affecting a particular industry. This analysis helps investors understand the broader context in which a company operates and identify trends that may impact its future growth prospects.
- Company analysis involves analyzing a specific company's financial statements, management team, business model, competitive advantages, and other relevant factors to determine its intrinsic value and growth potential. This analysis helps investors evaluate whether a company is undervalued or overvalued and make informed investment decisions.
- Both industry and company analysis are important components of equity research and are used by investors to make informed investment decisions.
- By examining industry trends and analyzing individual companies, investors can identify undervalued stocks and build a diversified portfolio that is well-positioned for long-term growth.

4.13 UNIT END QUESTIONS

A. Descriptive Questions:

1. What do you mean by securities?
2. Explain the characteristics of Securities market.
3. Write note on structure of securities market.
4. What is dematerialisation?
5. What are the types of derivatives securities?
6. Discuss the Primary sources of financial information.
7. What are the Secondary sources of financial information?
8. Write note on Industry analysis.
9. Write note on Company analysis.
10. Discuss the industry life cycle stages.
11. What is P/E ratio?
12. Explain the methods used for valuing equity shares.

B. Fill in the blanks:

1. The refers to the marketplace where investment funds like bonds, shares, and mortgages are traded.
2. The primary capital market is another name for the.....
3. The new issue market and stock exchange make up industrial securities markets.

4. allows a client to turn their physical certificates into electronic balances.
5. method estimates the present value of a company's future cash flows by discounting them back to their present value using a discount rate.
6. The estimates the intrinsic value of a company's stock based on the present value of its future dividends.
7. indicates how much profit a company is able to earn out of the sales of the company.
8. In stage, the industry might start to shrink or grow at lower rate than the overall economy.
9. Industry life cycle is divided into stages

Answer:

1. capital market
2. New Issue Market
3. India's
4. Dematerialization
5. Discounted Cash Flow (DCF) analysis
6. Dividend Discount Model (DDM)
7. Net Profit Margin
8. Relative Decline
9. four

4.14 SUGGESTED READINGS

- Graham, Benjamin, David, L., Dodd, Sidney Cottle, et al., Security Analysis: Principles and Techniques, 4th ed., New York McGraw – Hill Book Co. Inc., 1962.
- Granger, Clive W and Morgenstem Oskar, Predictability of Stock Market Prices, Lexington, Health Lexington, 1970.
- Granville, Joseph E., A Strategy of Daily Timings for Maximum Profit, Englewood Cliffs, N.J., Prentice-Hall, 1960.
- Gup, Benton E., Basics of Investing, N.Y. Wiley, 1979.
- Gupta L.C., Rates of Return on Equities: The Indian Experience, Bombay, Oxford University Press, 1981.

- Sudhindra Bhat, Security Analysis and Portfolio Management, Excel Book
- Bonus Shares, A Study of the Dividend and Price Effects of Bonus Shares Issues, Bombay, MacMillan, 1973.
- Graham, Benjamin, David, L., Dodd, Sidney Cottle, et al., Security Analysis: Principles and Techniques, 4th ed., New York McGraw – Hill Book Co. Inc., 1962.
- Granger, Clive W and Morgenstem Oskar, Predictability of Stock Market Prices, Lexington, Health Lexington, 1970.
- Granville, Joseph E., A Strategy of Daily Timings for Maximum Profit, Englewood Cliffs, N.J., Prentice-Hall, 1960.
- Gup, Benton E., Basics of Investing, N.Y. Wiley, 1979.
- Gupta L.C., Rates of Return on Equities: The Indian Experience, Bombay, Oxford University Press, 1981.
- Sudhindra Bhat, Security Analysis and Portfolio Management, Excel Books

FUNDAMENTAL ANALYSIS

Unit Structure:

5.0 Learning Objectives

5.1 Introduction

5.2 Fundamental Analysis

5.3 Economic Analysis

a) Introduction

b) Concept

c) Factors of Macro Economic Analysis

d) Economic Factors Influenced to Investment Management

5.4 Technical Analysis

5.5 Concept of Technical Analysis

5.6 Technical Vs Fundamental Analysis

5.7 Tools of Technical Analysis

5.8 Technical Indicators

5.9 Summary

5.10 Unit End Questions

5.11 Suggested Readings

5.0 LEARNING OBJECTIVES

After studying this lesson you are able to:

- To understand the meaning of fundamental analysis
- To know the impact of economic factors on stock value
- To know the Economic factors influenced Investment Management
- To discuss the concept and assumptions of technical analysis
- To understand the difference between Technical and Fundamental analysis
- To explain Tools and Techniques of Technical Analysis
- To understand Dow theory

5.1 INTRODUCTION

Investment decisions are a part of our economic life. Everybody makes such decisions in different contexts at different times. Some are able to reap more profits through them; while others simply lose their money. Attempts should, therefore, be made to understand and know the way sound

investments decision can be made in order to improve the change of making profit through them. Investment decision making being continuous in nature should be attempted systematically. These are fundamental analysis and technical analysis. In this approach, the investor attempts to look at fundamental factors that affect risk return characteristics of the security. While in the second approach, the investor tries to identify the price trends that reflect these characteristics. Technical analysis concentrates on demand and supply of securities and prevalent trend in share price mean by various market indices in the stock market.

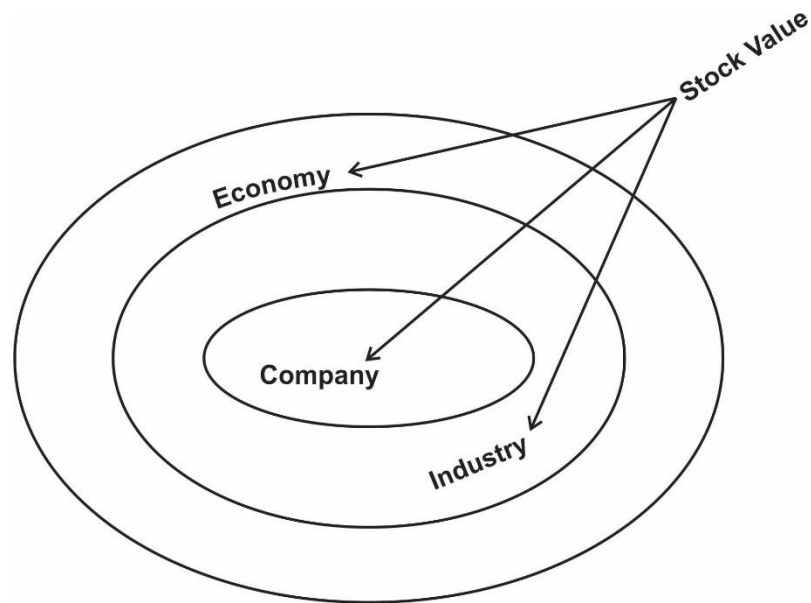
5.2 FUNDAMENTAL ANALYSIS

In the fundamental approach, an attempt is made to analyse various fundamental or basic factors that affect the risk-return of the securities. The effort here is to identify those securities that one perceives as mispriced in the stock market. The assumption in this case is that the market price of the security and the price as justified by its fundamental factors called intrinsic value are different and the market place provides an opportunity for a discerning investor to detect such discrepancy. The moment such a description is observed, a decision to invest or disinvest is made. The decision rule under this approach is like this:

If the price of a security at the market price is higher than the one, which is justified by the security fundamentals, sell that security. This is because, it is expected that the market will sooner or later realise its mistake and price the security properly. A deal to sell this security should be based on its fundamentals, it should be both before the market correct its mistake by increasing the price of security in question. The price prevailing in market is called market price (MP) and the one justified by its fundamentals is called intrinsic value (IV).

1. If $IV > MP$, buy the securities
2. If $IV < MP$, sell the securities
3. If $IV = MP$, no action

The fundamental factors mentioned above may relate to the economy or industry or company or some of this. Thus, economy fundamentals, industry fundamentals and company fundamentals are considered while prizing the securities for taking investment decision. This framework can be properly utilized by making suitable adjustments in a regular context. This kind of fundamental analysis is known as 'top down approach' because the analysis starts from an analysis of the economy, moves to industry, and narrows down to the company. This is also called EIC (Economy, Industry and Company) analysis. Fundamental analysis is a combination of economic, industry and company analysis to obtain a stock's current fair value and predict its future value.



The fundamental analysis of the investment management involves three major steps. They are as outlined below :

- Economic Analysis
- Industry Analysis
- Company Analysis

5.3 ECONOMIC ANALYSIS

a) Introduction

Companies are a part of the industry, which itself is a part of the overall economy. Thus, the performance of a company depends upon the performance of the economy in the first place. In order to estimate stock price changes, an analyst must spend more than a little time probing the forces operating in the overall economy. A failure to examine the overall economic influences is a naïve, that of assuming that individual companies follow their own private paths in a vacuum.

It is important to predict the course of the national economy, because economic activities affect corporate profits, investor attitudes and expectations and then ultimately influence the security prices. If the economy is in recession or stagnation, *ceteris paribus*, the performance of the company will be bad in general, with some exceptions. However, on the other hand, if the economy is booming, income is rising and demand is good, then the industries and the companies in general may be prosperous, with some expectations. However, An outlook of subsiding economic growth, can lead to lower corporate profits.

b) Concept

Economic analysis is a study of the general economic factors that go into an evaluation of a security's value. The stock market is an integral part of an economy. When the level of economic activity is low, stock prices are low,

and when the level of economic activity is high, stock prices are high, reflecting a booming outlook for the sales and profit of the firms. An analysis of the macroeconomic environment is essential to understand the behaviour of stock price.

c) Macro-Economic Analysis

The analysis of the following factors indicates the trends in macro-economic changes that effect the risk and return on investment.

i. Gross Domestic Product

The economic well-being of any nation can be depicted through several measures. However, the annual total output of goods and services stands out as the best available measure. The most commonly used measure of the aggregate output of any economy is the gross domestic product (GDP).

Gross domestic product is the total market value of a nation's output. It is the market value of all final goods and services produced within a given period of time by factors of production located within a nation. It is a key concept in the national income and product accounts. GDP, as a measure of the total production of an economy, acts as an economic barometer of a nation.

ii. Savings and investment

It is obvious that growth requires investment, which in turn, requires a considerable amount of domestic savings. Growth in savings naturally leads to more investments. High capital investment means possibility of more production, more demand and supply, better prices in the future and consequently, higher business profits and a positive outlook for the stock market. Savings are distributed over different assets like equity shares, deposits, mutual fund units, real estate etc. The primary market is a channel through which the savings of investors are made available to corporate bodies.

iii. Inflation

A simple explanation of inflation is that it refers to a situation where too much money is chasing too few goods. Inflation indicates a rise in the price of goods and services. Along with the growth of GDP, if the inflation rate also increases, then the real rate of growth would be very low. Inflation and stock market have a very close relationship. If there is inflation, the stock market is adversely affected. The price of stock is directly related to the performance of the company.

iv. Interest rates

Interest rate play a key role in the general business cycle and the financial markets. When interest rates or interest rate expectations change, the effects become far-reaching. When rates rises, consumer spend less, slowing down the retail sales which lead to lower corporate profits, a declining stock market, and higher employment. Vice versa holds good. The effect of declining corporate profits on the

stock market is compounded by the fact that higher interest rates make interest bearing investments more attractive, causing an exodus of money from the stock market.

v. Budget and fiscal deficit

The budget draft provides a detailed account of government revenues and expenditures. A deficit budget may lead to a high rate of inflation and adversely affect the cost of production. A surplus budget may result in deflation. A balanced budget is highly favourable to the stock market.

Fiscal deficit is the difference between the government's total receipts (excluding borrowing) and total expenditure. It can be expressed as follows:

Fiscal deficit = Total expenditure (revenue + capital) – (Revenue receipts + Non debt capital receipts)

vi. Tax structure

Every year in march, the business community eagerly awaits the statement from the government regarding the tax policy. Concession and incentives given to a particular industry encourage investment in that particular industry. The finance minister introduced tax exemptions for stock market investments in union Budget (2012-13) to attract retail investors to the stock market. GST has been introduced in the year 2017.

a. Balance of Payment

The balance of payment is the record of a country's money receipts from abroad and payments to foreign countries. The difference between receipts and payments may be surplus or a deficit. Balance of payment is a measure of the strength of the rupee on the external account. If the deficit increases, the rupee value may depreciate against other currencies, thereby affecting the cost of imports. Industries involved in the export and imports are markedly affected by changes in the foreign exchange rate. The volatility of the foreign exchange rate affects the investment of the foreign institutional investors in the Indian stock market. A favourable balance of payments has a positive effect on the stock market.

vii. Foreign Direct Investment

According to the International Monetary Fund (IMF), the definition of the foreign direct investment (FDI) includes different elements, namely, equity capital, reinvestment earnings of foreign companies, inter- company debt transactions, short and long-term loans, financial leasing, trade credits, investment made by foreign venture capital investors and so on. FDIs help in the upgrading the technology, skills and managerial capabilities and bring much needed capital into the economy. They also help in providing employment opportunities.

viii. Investment by Foreign Institutional Investor (FIIs)

FIIs are considered to be the main drivers of the stock market. Outflows of FII investment affect the stock market negatively. Considering the importance of FIIs investments, in Jan, 2012, the government announced its decision to allow qualified foreign investor (QFIs) to invest directly in the Indian equity market

ix. International economic conditions

Worldwide economics are not independent but interdependent. The boom or depression in one country affects other countries and the stock market. For example, the sub-prime crisis in the US, bankruptcies and 29 % drop in the Dow Jones and NASDAQ had an impact on the Indian economy.

x. Monsoon and agriculture

In spite of technological advancements, Indian agriculture still depends heavily on the monsoons. Good monsoon are a boon for agriculture. Agriculture is directly and indirectly linked to many industries. For example, the sugar, cotton, textile and food processing industries depend upon agriculture for raw materials. Farm equipment, fertilizer, and insecticide industries supply the inputs used in agriculture. A favourable monsoon leads to higher demands for these inputs, a bumper crops and more disposable income in rural areas. This leads to buoyancy in the stock market. When the monsoon fails, agriculture production and hydropower generation decline. They cast a shadow on the share market.

xi. Infrastructure facilities

Good infrastructure facilities affect the stock market that is favourable. Infrastructure facilities are essential for the growth of the industrial and agricultural sectors. A wide communications network is a must for the growth of the economy. Regular supply of energy without any power cuts will enhance production. The banking and financial sector should also be strong enough to provide adequate support to industry and agriculture. In India, even though infrastructural facilities have been developed, they are not enough. The government has liberalised its policy for the communication, transport and power sector.

xii. Demographic factors

Demographic data provide details about the population of age, occupation, literacy and geographical location. This is needed to forecast the demand for consumer goods. The population by age indicates the availability of a skilled workforce. The cheap labour force in India has encouraged many multinationals to launch their ventures. Indian labour is cheaper compared to its western part. Population, by providing employees and demand for products, affects industry and the stock market

d) Economic Analysis factors influenced Investment Management

- Demand of security from the investor. It has created a heavy demand for security. If demand, the price value of the securities is increased in the market.
- Demand and supply is also influenced by investment; for example, if supply of securities is greater, the result is the price of securities is reduced.
- If demand for security, there is no supply, in this circumstance, the price of such company's shares is high.
- Economic factors have help to creation of savings.
- Economy tells something about the effective way to earn income and then how to convert a successful saving avenue to the common people.
- Economical factors are in favour with investment decisions. If there is inflation, the result is price increased for commodities. At the same time, business earns more profit that will be convert as saving. If there is deflation, the commodities price is reduced. At the same time, common people save money and then will investment companies.

5.4 TECHNICAL ANALYSIS

There are two primary methods for security analysis: fundamental analysis and technical analysis. Fundamental analysis is typically utilised in combination with technical analysis rather than as a replacement for it. On the basis of examination of the economy, industries, and companies, fundamental analysis makes stock price predictions. With the use of a risk-return framework based on earning potential and the general economic climate, the stock value is assessed. Technical analysis, however, contends that market forces such as supply and demand determine stock prices. It barely bears any relationship to intrinsic worth. A given stock's market price already takes into account all of its financial and market information. Technical analysts have created tools and methods specifically for studying markets. Technical analysts research the technical traits that could be anticipated at major market turning points and their unbiased evaluation. In order to create certain traits that would aid in identifying significant market tops and bottoms, the historical turning moments are researched. The majority of human behaviours are similar, though not identical, and the technician uses a variety of techniques to try and accurately spot trends and capitalise on them.

5.5 CONCEPT OF TECHNICAL ANALYSIS

"Technical analysis is directed towards predicting the price of a security. The price at which abuyer and seller settle a. deal is considered to be the one precise figure which synthesizes, weighs andfinally expressesall factors, rationaland irrational quantifiable and non-quantifiable and is the onlyfigure thatcounts". As a result, technical analysis offers a clear and comprehensive picture of what is occurring to a security's price. It provides a general outline of the entire scenario, much like a shadow or reflection, and it truly functions in real life.

7.2.1 Assumptions of Technical Analysis

There are some basic assumptions underlying the technical analysis. These assumptions are discussed as follows:

1. The combination of factors affecting supply and demand in the market determines a security's market value alone.
2. There are several elements surrounding a security's supply and demand that can be both rational and irrational.
3. Depending on the attitudes, psychology, and emotions of operators or traders, the price of a security moves in trends or waves that can be either upward or downward.
4. Historical trends have an impact on current trends, and research of past pricing trends can help predict future trends.
5. Be prepared for slight fluctuations; stock values typically follow trends that last for a significant amount of time.
6. Anytime there is a change in the demand and supply elements, stock price patterns can change.
7. Charts created specifically to display market activity can be used to spot changes in demand and supply, regardless of when or why they happen.
8. Some chart trends have a propensity to repeat. Price movements are tracked by patterns that are projected by charts, and technical analysis uses existing patterns to predict future patterns.

5.6 TECHNICAL VS FUNDAMENTAL ANALYSIS

The major differences between the technical and fundamental analysis areas follows:

- I. While fundamental research aims to identify long-term values, technical analysis attempts to forecast short-term price changes.
- II. While fundamental research focuses on aspects linked to the economy, industry, and company, technical analysis focuses mostly on internal market data, especially price and volume data.
- III. While long-term investors employ the findings of fundamental analysis, traders who seek to earn rapid money frequently rely on the findings of technical analysis.
- IV. Fundamental analysis is complex, time-consuming, and laborious in nature since it requires gathering and analysing enormous amounts of data. On the other hand, technical analysis is a quick and easy way to predict how stock prices will react.
- V. The technical analyst claims that their approach is preferable than fundamental analysis because the latter is dependent on financial

statements, which are vulnerable to a number of flaws such as incomplete disclosure and subjectivity.

- VI. A longer-term strategy is fundamental examination. Even if an analyst finds a security that is out of period, it could take some time for the market to bid its price higher. Fundamental analysis is perceived by technical analysts as being slower and inferior to their own methods and charts.

Therefore, technical and fundamental analysis offer completely different methods for appraisal. However, in practise, it is usually employed to achieve better outcomes to judiciously combine both of these ways.

These two methods are utilised in conjunction with one another rather than as a substitute.

5.7 TOOLS OF TECHNICAL ANALYSIS

There are several methods and tools available for performing technical analysis. Basically, the following four crucial points of view are used to conduct this analysis:

1. **Price:** Any time a security's price changes, investor sentiment, the demand for and supply of securities also fluctuate.
2. **Time:** The amount of price fluctuation is a function of time. The magnitude of the price adjustment that follows will increase the longer it takes for a trend to reverse.
3. **Volume:** A minor change in the volume of transactions indicates that the change is not significant enough. The intensity of price adjustments is represented in the volume of transactions that are associated with it.
4. **Width:** The extent to which a change in trend extends throughout the majority of sectors and industries—or is concentrated in a small number of securities—is a key indicator of the quality of a price change. Analyzing market size reveals the degree to which pricing adjustments have occurred in the market in accordance with specific broad patterns.

The following technical analysis tools and procedures are explored in relation to the aforementioned dimensions:

5.7.1 DOW THEORY

One of the earliest technical theories that is still commonly used is the Dow Theory, which Charles Dow first proposed in 1900. This theory is where the fundamental ideas of technical analysis come from.

According to Charles Dow "The market is always considered as having three movements, all going at the same time. The first is the narrow movement from day to day. The second is the shortswing, running from two weeks to a month or more and third is the main movement, covering at least four years in its duration".

According to the hypothesis, 90% of stock activity is psychological and 10% is logical. Prices vary according to the mood of the market, and the mood can be detected by examining transaction prices and volumes.

The Dow Theory does not attempt to foretell future movements or estimate the extent or duration of such market trends; it just explains the direction of market trends. The hypothesis typically relies on stock behaviour to reflect underlying market trends. As a result, the theory's tenets were tested using market indexes that were created especially to track market developments.

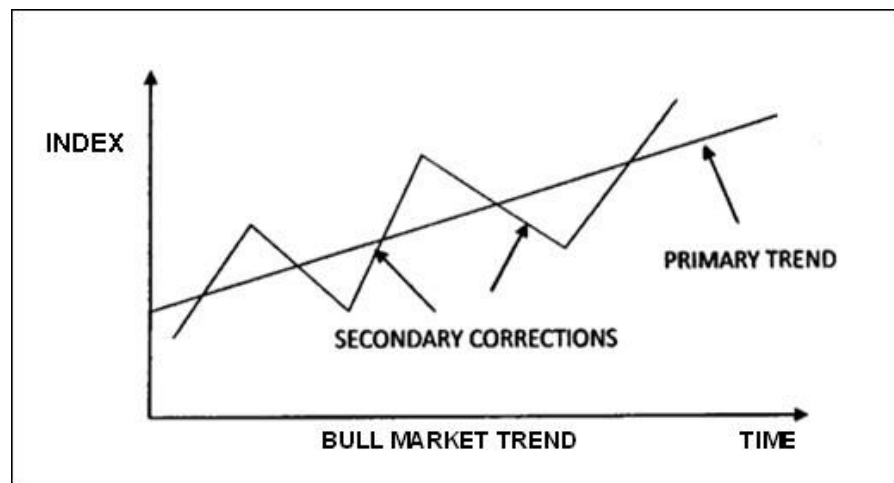
Basic tenets of Dow Theory: The following are the few and simple basic principles of the Dow Theory:

1. Since the index numbers represent the aggregate market activity of thousands of investors and brokers, they discount everything save divine acts. As a result, share prices represent the collective opinion of all stock market participants regarding both the existing and anticipated changes in the demand-supply dynamics of stocks.
2. The term "market" refers to overall price changes for shares as well as primary, secondary, and minor trend swings. The main market trends are represented by primary movements, which can span anywhere from a year to many years. It may be either a bullish (rising) or bearish (falling) trend. Secondary swings in the opposite direction pause periodic movements in the leading trend's direction. The length of the secondary trends typically ranges from a few weeks to a few months. To prevent deviations from the main trend's general bounds, this trend acts as a restraint on it. The daily market fluctuations are the minor trends. Due to their brief duration and amplitude changes, these have minimal analytical value.
3. The primary trend is upward as long as each subsequent price advance reaches a level higher than the one before it and each secondary reaction, or price decrease, comes to a finish at a level higher than the one before it. This is called a "bull market".
4. The primary trend is downward, and this is referred to as a "bear market" when each intermediate downturn carries prices to gradually lower levels and each intervening recovery fails to get them back up to the peak level of the prior increase.
5. The intermediate corrections or dips that take place in bull markets, as well as the intermediate advances or recoveries that take place in bear markets, are considered secondary trends. These often last three weeks to many months and retrace between one-third and two-thirds of the price gain or loss seen during the prior swing, in the main direction.
6. The sporadic changes with a typical duration of six days but infrequently three weeks are known as minor trends. These have no

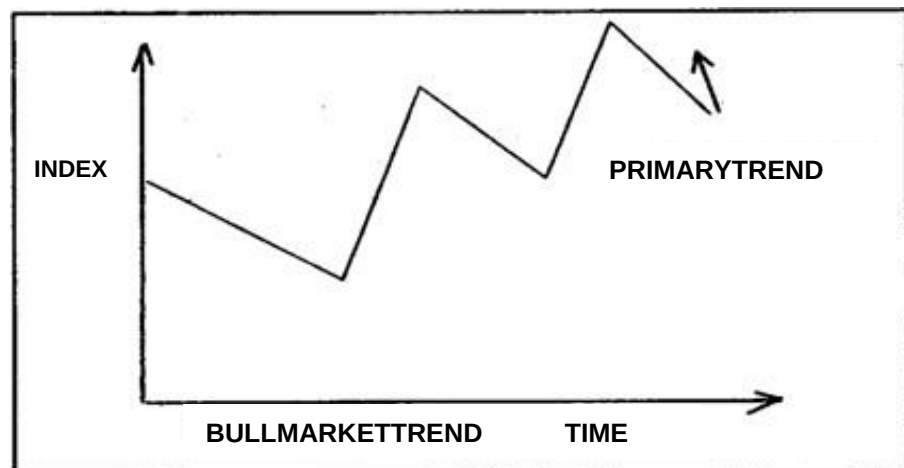
use other than to contribute to secondary trends. The only trend that is theoretically manipulable is this one.

7. Occasionally, a line can take the place of the secondary trend. According to the Dow Theory, a line is a sideways movement that lasts for two to three weeks, or even months, and during which prices change by no more than 5% of their mean values.
8. Until a trend's reversal has been clearly signalled, it should be expected that it will continue. When a secondary reaction of drop carries prices lower than the level registered during the earlier reaction and the succeeding advance fails to carry prices beyond the apex of the prior recovery, this signals the end of a bull market. The end of a bear market is signaled when an intermediate recovery carries prices to a level higher than the one registered in the previous advance and the subsequent decline falls below the level recorded in the earlier reaction.

The following figure gives an example of a bull market trend.



This figure shows a bull market interrupted by reactions. The following figure shows a bear market trend.



This figure shows a bear market interrupted by recoveries.

Dow Theory's Short comings: The Dow Theory has been around for a while and is frequently used in technical analysis. The following reasons, however, have led to criticism of the theory:

The Dow Theory predicts one trend change, frequently too late. Only when the nearest intermediate button is breached by more than 3% of the level and the succeeding rise fails to raise index prices above the previous high does a bull market come to an end. According to estimates, the theory frequently detects a trend reversal 20 to 25% after a peak or trough has occurred. But then there is no other way of forecasting that the change of trend has taken place at the top and it is better to be late than to be wrong.

Because the Dow Theory depends on interpretation, it is vulnerable to all the risks associated with human interpretation. Experience has demonstrated that the interpretation of the theory is usually where it goes wrong, rather than the theory itself.

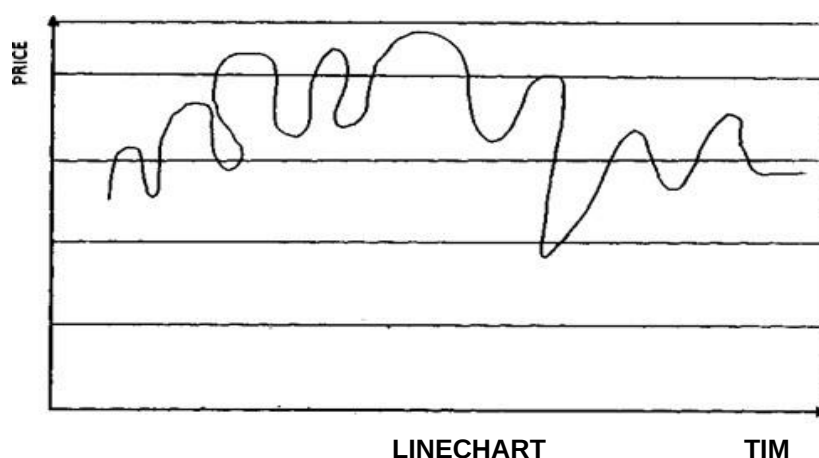
5.7.2 Types of charts

One school of thought led by William L. Jiler developed a comprehensive technique called "Chart Reading". Charts provide visual assistance detecting the emerging and changing patterns and changing patterns of price behaviour.

The core element of chartism is that share prices exhibit patterns over time. These are a mirror of investor behaviour, and it may be assumed that the stock market has a tendency for history to repeat itself. When a given pattern of behaviour reappears in the future, it will probably yield the same results as it did in the past. The different kinds of regularly used charts are:

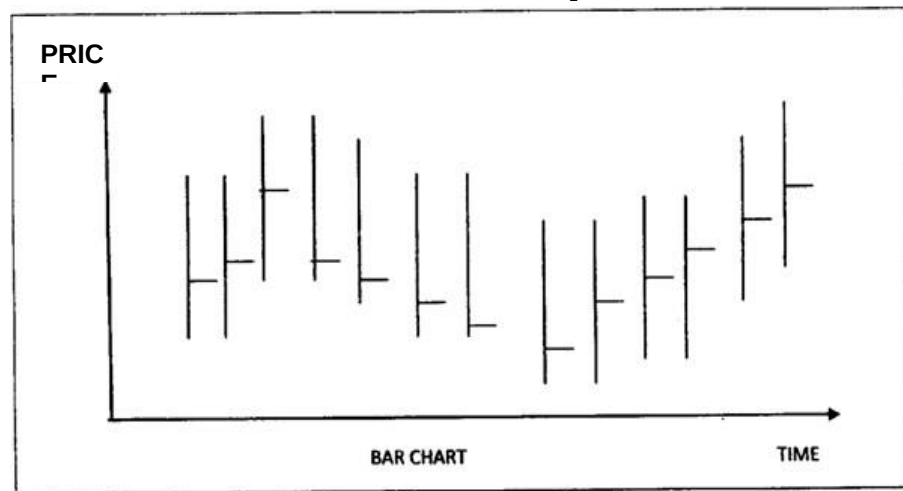
- a) Line chart
- b) Bar chart
- c) Point and figure chart

a) Line charts: A line chart is the most basic type of chart. Line charts are straightforward graphs created by connecting the points created by plotting the closing price of the stock on a given day across time. The highs and lows of stock prices for each time are ignored by line charts. A typical line chart is shown in the following figure.



b) Bar charts: It is a straightforward charting method. Prices are indicated on the vertical axis of this chart, and time is indicated on the horizontal axis. On a single line, the market or price change for a specific session is shown (often a day). The high and low prices at which the stock traded or the market fluctuated are displayed in the vertical portion of the line. The price or level at which the stock or market closed is shown by a brief horizontal tick on the vertical line. The bar chart in the following image:

Candlestick Charts: The Candlestick chart is similar to a bar chart, but it differs in the way that it is visually constructed. Similar to the bar chart, the candlestick also has a thin vertical line showing the period's trading range. The difference comes in the formation of a wide bar on the vertical line, which illustrates the difference between the open and close



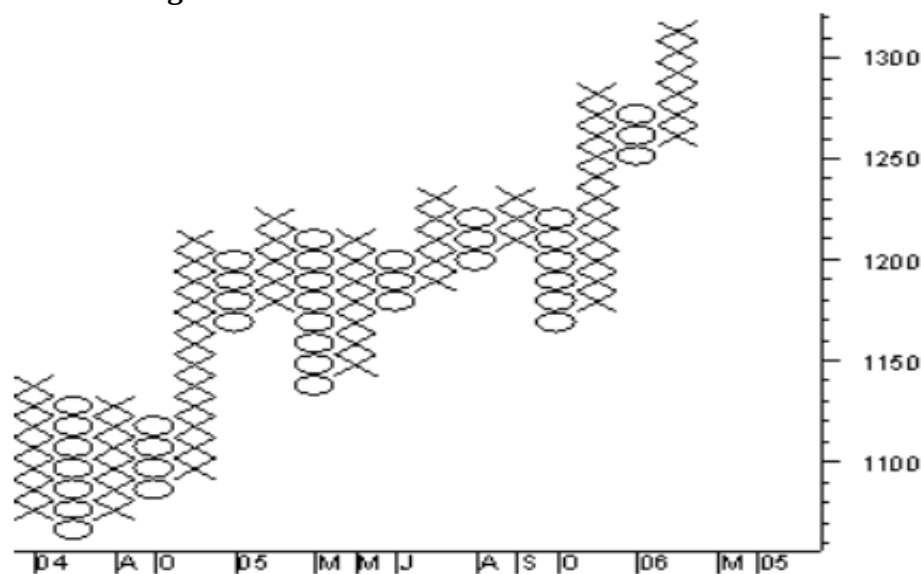
And, like bar charts, candlesticks also rely heavily on the use of colours to explain what has happened during the trading period. A major problem with the candlestick colour configuration, however, is that different sites use different standards; therefore, it is important to understand the candlestick configuration used at the chart site you are working with. There are two colour constructs for days up and one for days that the price falls.

When the price of the stock is up and closes above the opening trade, the candlestick will usually be white or clear. If the stock has traded down for the period, then the candlestick will usually be red or black, depending on the site. If the stock's price has closed above the previous day's close but below the day's open, the candlestick will be black or filled with the colour that is used to indicate an up day.



Point - and - Figure Chart: Bar chartists count on discovering certain buying and selling forces in the market, on the basis of which they predict future price trends. These forces consist of three factors – time, volume and price. Members of another school, known as the point-and-figure chartists, question the usefulness of the first two factors. They argue that the way to predict future price fluctuations is to analyze price changes only. Consequently, they assert, no volume action need be recorded, and the time dimension (day, week, or month) should also be ignored. If only significant price changes are important, then one need only capture the significant (say, one point or more, ignoring all fractions) price changes in a stock, no matter how long it takes for the stock to register this change.

A Point and Figure Chart



Charts are one of the most fundamental aspects of technical analysis. It is important that you clearly understand what is being shown on a chart and the information that it provides. Now that we have an idea of how charts are constructed.

5.8 TECHNICAL INDICATORS

Indicators and Oscillators

Indicators are calculations based on the price and the volume of a security that measure such things as money flow, trends, volatility and momentum. Indicators are used as a secondary measure to the actual price movements and add additional information to the analysis of securities.

Indicators are used in two main ways: to confirm price movement and the quality of chart patterns, and to form buy and sell signals.

There are two main types of indicators: leading and lagging. A leading indicator precedes price movements, giving them a predictive quality, while a lagging indicator is a confirmation tool because it follows price movement. A leading indicator is thought to be the strongest during periods of sideways or non-trending trading ranges, while the lagging indicators are still useful during trending periods.

Aroon Oscillator

An expansion of the Aroon is the Aroon oscillator, which simply plots the difference between the Aroon up and down lines by subtracting the two lines. This line is then plotted between a range of -100 and 100. The centreline at zero in the oscillator is considered to be a major signal line determining the trend. The higher the value of the oscillator from the centreline point, the more upward strength there is in the security; the lower the oscillator's value is from the centreline, the more downward the pressure.

Relative Strength Index

The relative strength index (RSI) is another one of the most used and well-known momentum indicators in technical analysis. RSI helps to signal overbought and oversold conditions in a security. The indicator is plotted in a range between zero and 100. A reading above 70 is used to suggest that a security is overbought, while a reading below 30 is used to suggest that it is oversold. This indicator helps traders to identify whether a security's price has been unreasonably pushed to current levels and whether a reversal may be on the way.



Most of the technical indicators make sense when examined individually but when one examines many technical indicators simultaneously, the interpretation of their collective meaning is often contradictory and confusing. Once technical analyst issued the following report:

The breadth of the market remains pretty bearish, but the odd-lot index is still in balance and is more bullish than bearish. While the short interest is not bearish, brokers loans are at a dangerously high level. Business indices are beginning to turn sharply upward and most psychological indicators are generally uptrend. The index of 20 low-priced stocks remains in a general upward trend, but the confidence index still is in a long-term downtrend. The Canadian gold price index is still in a downtrend, which normally implies a higher stock market ahead.

Professional and public opinion remains cautiously optimistic, which is also an indication of a higher stock market, but on a decline below 800, the Dow Jones Industrial averages would emit a definite sell signal.

The author of this technical report presented numerous technical indicators that collectively add up to organized confusion. Some of the major technical indicators are described in the following sections. Each indicator makes sense by itself, but interpreting all of them at the same time may yield the same type of confusion found in the passage quoted above.

1. **The Short Interest Ratio Theory:** The short interest ratio is derived by dividing the reported short interest or the number of shares sold short, by the average volume for about 30 days.

When short sales increase relative to total volume, the indicator rises. A ratio above 150% is considered bullish, and a ratio below 100% is considered bearish.

The logic behind this ratio is that speculators and other investor sell stocks at high price in anticipation of buying them back at lower prices. Thus, increasing short selling is viewed as a sign of general market weakness, and short covering (as evidenced by decreasing short positions) as a sign of strength. An existing large short interest is considered a sign of strength, since the cover (buying) is yet to come; whereas an established slight short interest is considered a sign of weakness (more short sales are to come).

2. **Confidence Index:** It is the ratio of a group of lower-grade bonds to a group of higher grade bonds. According to the theory underlying this index, when the ratio is high, investors' confidence is likewise high, as reflected by their purchase of relatively more of the lower-grade securities. When they buy relatively more of the higher-grade securities, this is taken as an indication that confidence is low, and is reflected in a low ratio.
3. **Spreads:** Large spreads between yields indicate low confidence and are bearish; the market appears to require a large compensation for business, financial and inflation risks. Small spreads indicate high confidence and are bullish. In short, the larger the spreads, the lower

the ratio and the less the confidence. The smaller the spreads, the greater the ratio, indicating greater confidence.

4. **Advance - Decline ratio:** The index-relating advance to decline is called the advance decline ratio. When advances persistently outnumber declines, the ratio increases. A bullish condition is said to exist, and vice versa. Thus, an advance decline ratio tries to capture the market's underlying strength by taking into account the number of advancing and declining issues.
5. **Market Breadth Index:** The market breadth index is a variant of the advance decline ratio.

To compute it, we take the net difference between the number of stocks rising and the number of stocks falling, added (or subtracted) to the previous.

Example: If in a given week 600 shares advanced, 200 shares declined, and 200 were unchanged, the breadth would be $2[(600 - 200)/200]$. The figure of each week is added to previous week's figure. These data are then plotted to establish the pattern of movement of advance and declines.

The purpose of the market breadth index is to indicate whether a confirmation of some index has occurred. If both the stock index and the market breadth index increase, the market is bullish; when the stock index increase but the breadth index does not, the market is bearish.

6. **The Odd-Lot Ratio:** Odd-lot transactions are measured by odd-lot changes in index. Oddlots are stock transactions of less than, say, 100 shares. The odd-lot ratio is sometimes referred to as a yardstick of uniformed sentiment or an index of contrary opinion because the odd-lot theory assumes that small buyers or sellers are not very bright especially at tops and bottoms when they need to be the brightest. The odd-lot short ratio theory assumes that the odd-lot short sellers are even more likely to be wrong than odd-lot buyers in general. This indicator relates odd-lot sales to purchases.
7. **Insider Transactions:** The hypothesis that insider activity may be indicative of future stock prices has received some support in academic literature. Since insiders may have the best picture of how the firm is faring, some believers of technical analysis feel that these inside transactions offer a clue, to future earnings, dividend and stock price performance.

If the insiders are selling heavily, it is considered a bearish indicator and vice versa.

Stockholders do not like to hear that the president of a company is selling large blocks of stock of the company. Although the president's reason for selling the stock may not be related to the future growth of the company, it is still considered bearish as investors figure the president, as an insider, must know something bad about the company that they, as outsiders, do not know.

5.9 SUMMARY

- Fundamental analysis is the study of the economic factors, and the industrial environment and other factors that have a bearing on the company.
- A commonly advocated procedure for fundamental analysis involves three steps: Macro Economic Analysis, Industry analysis and Company analysis.
- The state of the economy determines the growth of GDP and investment opportunities.
- An economy with favourable savings, investments, stable prices, balance of payments, and infrastructural facilities provides the best environment for common stock investment
- The leading, coincidental and lagging indicators help to forecast economic growth. A rising stock market indicates a strong economy ahead.
- And, also explains the significance of Economical factors which are favourable for investment decisions.
- The term technical analysis is used to mean a fairly wide range of techniques; all based on the concept that past information on prices and trading volume of stocks gives the enlightened investor a picture of what lies ahead.
- It attempts to explain and forecast changes in security prices by studying only the market data rather than information about a company or its prospects, as is done by fundamental analyst.
- Fundamentalists make their decisions on quality, value and depending on their specific investment goals, the yield or growth potential of the security.
- They are concerned with the basis, the corporation's financial strength, record of growth in sales and earnings, profitability, the investment acceptance and so on.

5.10 UNIT END QUESTIONS:

1. What is fundamental Analysis? Explain the concept of Economic analysis.
2. What are the factors influencing economic analysis?
3. Explain the importance of economic analysis and the state the economic factors considered for this analysis.
4. What is Technical Analysis?

5. Explain the Dow Theory
6. Write note on Type of Charts - Construction of Charts.
7. What are the technical indicators?
8. Explain The Short Interest Ratio Theory

B. Fill in the blanks:

1. Technical analysis is a method of securities by analyzing the statistics generated by market activity, such as past prices and volume.
2. According to Dow, "The market is always considered as having movements, all going at the same time."
3. indicators are used to determine what the main body of stocks is doing.
4. A is the most basic type of chart.
5. The chart is similar to a bar chart, but it differs in the way that it is visually constructed.

Answer:

1. evaluating
2. three
3. Breadth-of-market
4. line chart
5. Candlestick

5.11 SUGGESTED READINGS

- Samuels J.M, F.M. Wilkesard R.E. Brayshaw, Management of Company Finance, Chapman and Hall, London
- Smith, Edger Lawrence, Common Stocks as Long-term Investment, New York, Mac Millan.
- Sprinkel, Beryl, W., Money and Stock Prices, Home wood III, Richard S. Irwin, Inc.
- Sudhindhra Bhatt, Security Analysis and Portfolio Management, Excel Books.
- Fischer, D.E., Security Analysis and Portfolio Management, Prentice Hall, 1983.
- Reilly, F.K., Investment Analysis & Portfolio Management, Dryden Press, 1985.

