

SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

COURSE CODE: B21CM03DE

Bachelor of Commerce

Discipline Specific Elective Course

Self Learning Material



SREENARAYANAGURU
OPEN UNIVERSITY

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The State University for Education, Training and Research in Blended Format, Kerala

SREENARAYANAGURU OPEN UNIVERSITY

Vision

To increase access of potential learners of all categories to higher education, research and training, and ensure equity through delivery of high quality processes and outcomes fostering inclusive educational empowerment for social advancement.

Mission

To be benchmarked as a model for conservation and dissemination of knowledge and skill on blended and virtual mode in education, training and research for normal, continuing, and adult learners.

Pathway

Access and Quality define Equity.

Security Analysis and Portfolio Management

Course Code: B21CM03DE

Semester - VI

**Discipline Specific Elective Course
Bachelor of Commerce
Self Learning Material
(With Model Question Paper Sets)**



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Course Code: B21CM03DE

Semester - VI

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Bachelor of Commerce

Academic Committee

Dr. Biju T.
Dr. Binu R.
Dr. Sunil Raj N.V.
Dr. Sreedhar P. Nair
Dr. Shehnaz S.R.
Dr. Chithra. P.
Dr. Jayaprakasan P.P.
Dr. Ruby S.
Savitha M.A.
Dr. Silpa Sasankan

Development of the Content

Dr. Kavitha S., Dr. Gopika C.G.,
Dr. Anand K., Dr. Midhun V.,
Shahanaz Cheenika, Tom Jacob

Review & Edit

Dr. T.K. Valsan

Linguistics

Reshma R.

Scrutiny

Dr. Kavitha S.
Dr. Gopika C.G.
Dr. Midhun V.
Dr. Athena Prince
Mahesan K. P.

Cover Design

Jobin J.

Co-ordination

Director, MDDC :

Dr. I.G. Shibi

Asst. Director, MDDC :

Dr. Sajeekumar G.

Coordinator, Development:

Dr. Anfal M.

Coordinator, Distribution:

Dr. Sanitha K.K.



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Edition

July 2026

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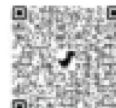
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ISBN 978-81-688844-7-2



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Dear learner,

I extend my heartfelt greetings and profound enthusiasm as I warmly welcome you to Sreenarayanaguru Open University. Established in September 2020 as a state-led endeavour to promote higher education through open and distance learning modes, our institution was shaped by the guiding principle that access and quality are the cornerstones of equity. We have firmly resolved to uphold the highest standards of education, setting the benchmark and charting the course.

The courses offered by the Sreenarayanaguru Open University aim to strike a quality balance, ensuring students are equipped for both personal growth and professional excellence. The University embraces the widely acclaimed “blended format,” a practical framework that harmoniously integrates Self-Learning Materials, Classroom Counseling, and Virtual modes, fostering a dynamic and enriching experience for both learners and instructors.

The University aims to offer you an engaging and thought-provoking educational journey. The Bachelor of Commerce is one of the highly popular programmes due to the current need for skilled professionals in the field. This demand guided our approach as we developed the programme's curriculum. The programme offers a comprehensive grasp of theoretical concepts alongside clear explanations of practical applications. We are careful to maintain a balance in the management components to preserve the integrity of the discipline. The Self Learning Material has been thoughtfully crafted to include illustrative examples. The Self-Learning Material has been meticulously crafted, incorporating relevant examples to facilitate better comprehension.

Rest assured, the university's student support services will be at your disposal throughout your academic journey, readily available to address any concerns or grievances you may encounter. We encourage you to reach out to us freely regarding any matter about your academic programme. It is our sincere wish that you achieve the utmost success.



Warm regards.
Dr. Jagathy Raj V. P.

01-07-2026

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Fundamentals of Investments

Unit

Fundamentals of investments

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ Comprehend the concept of investment
- ◇ Get an idea about the importance of investment.
- ◇ Differentiate the economic, physical and financial investments
- ◇ Identify the corporate and personal investments

Prerequisite

In a small village in Kerala, Alappuzha, two friends, Mr. Rajan and Mr. Suresh, earned almost the same income by selling coconuts from their farms. Every month, Mr. Rajan kept his extra money safely at home because he believed it was the safest place. Mr. Suresh, however, deposited part of his savings in a bank, invested some money in a mutual fund through a Systematic Investment Plan (SIP), and also purchased a few government bonds. After ten years, both friends had worked equally hard, but their financial position was very different. Mr. Rajan's savings had remained almost the same, while the prices of land, education, and healthcare had increased significantly. Mr. Suresh's investments had earned interest, dividends and capital appreciation, enabling him to build a new house, support his daughter's higher education and expand his coconut farm with modern equipment. Mr. Rajan then realised that saving preserves money, but investment helps money grow. This simple story highlights why understanding investment is essential for every individual. In this unit, learners will explore the meaning, importance and different dimensions of investment, and understand how investment contributes to personal wealth, business growth and national economic development.

Keywords

Investment, economic, financial, physical, corporate, personal

Discussion

Every individual earns income to satisfy present needs such as food, clothing, education, healthcare and other daily expenses. But a person does not spend the entire income immediately. A portion of the income is saved to meet future needs such as children's education, purchasing a house, retirement, medical emergencies or starting a business. These savings, if kept idle, do not generate any income and gradually lose their purchasing power due to inflation. Therefore, people invest their savings in different assets so that they can earn additional income and increase their wealth over time.

Mr. Amar, a newly appointed lecturer, receives a monthly salary. After meeting his family expenses, he saves ₹8,000 every month. Initially, he keeps the money in his cupboard. After a few years, he realises that although he has accumulated savings, the prices of goods have increased and his money has not grown. Amar then decides to invest his savings in bank deposits, mutual funds and government securities. Over time, his investments earn interest and capital appreciation, enabling him to purchase a house and meet future financial needs. This simple example shows that saving creates funds, whereas investment helps those savings grow.

1.1.1 Meaning of Investment

Investment is the commitment of funds for a period with the expectation of receiving more than the current outlay. The returns could be in the form of annual income and/or appreciation in value. It is an activity undertaken by people who have savings. Although every investor is a saver, every saver is not necessarily an investor. Saving means setting aside a portion of income for future use, whereas investment means employing those savings in productive assets with the expectation of earning additional income or increasing wealth.

People may view investment differently depending on their objectives. A person who lends money to another expects to receive the principal amount along with interest in the future and therefore considers it an investment. Another person may purchase gold expecting its price to increase over time. Someone else may buy an insurance policy to receive financial benefits and protection in the future. In each of these cases, money is committed today with the expectation of obtaining future benefits.

1.1.2 Definition of Investment

Investment may be defined as: "Investment is a commitment of funds made in the expectation of earning a positive rate of return in the future."



The expectation of return is the most important feature of every investment. Since the return is expected in the future, there is always the possibility that the actual return may differ from the expected return. This uncertainty is known as investment risk. Therefore, every investment involves both return and risk.

1.1.3 Need and Importance of Investment

Investment plays a vital role in achieving financial security and economic growth. Merely saving money is not sufficient because idle money does not generate income and gradually loses its value due to inflation. Investment enables savings to grow and helps individuals achieve their financial objectives. Surya saves part of her monthly income and invests it in fixed deposits and mutual funds. The returns earned from these investments help her finance her daughter's higher education without borrowing money. Similarly, businesses invest funds in new machinery and technology to expand production and increase profits, while governments invest in infrastructure projects such as roads, bridges and hospitals to promote national development.

The importance of investment can be understood through the following points.

- ◇ It helps in creating wealth through interest, dividends and capital appreciation.
- ◇ It provides regular income to investors in the form of interest, dividends, rent or pension.
- ◇ It enables individuals to achieve long-term financial goals such as purchasing a house, children's education and retirement planning.
- ◇ It protects the purchasing power of money against inflation.
- ◇ It provides financial security during emergencies and unexpected situations.
- ◇ It encourages capital formation and economic development.
- ◇ It generates employment opportunities by financing productive activities.
- ◇ It improves the overall standard of living by increasing income and wealth.

1.1.4 Dimensions of Investment

Investment can be viewed from different perspectives. Broadly, investments are classified into

1. Economic Investment
2. Physical Investment and
3. Financial Investment.

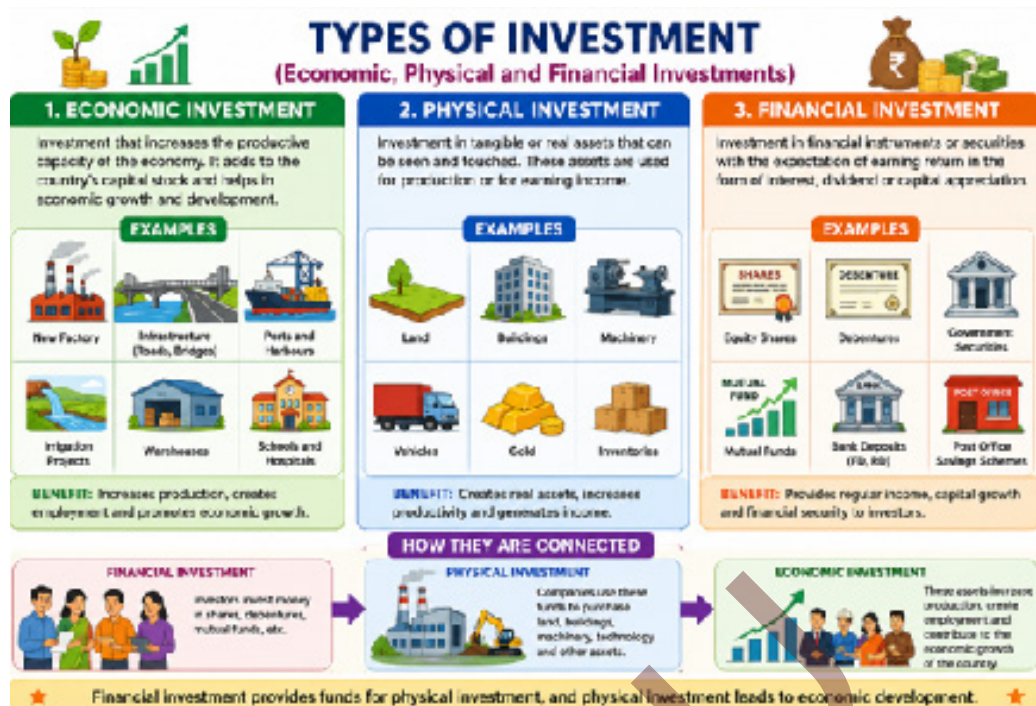


Figure 1.1.1 Dimensions of investment

1.1.4.1 Economic Investment

A company constructs a new factory, purchases modern machinery and starts production; it creates employment, increases production and contributes to national income. Such activities represent economic investment because they add to the country's productive assets. In the economic sense, investment refers to the net addition to the economy's capital stock. It includes the creation of new productive assets that are used in producing other goods and services. Economic investment increases the productive capacity of the nation and contributes to economic growth.

Economic investment includes:

- ◇ Construction of factories and industrial buildings.
- ◇ Purchase of plant and machinery.
- ◇ Development of roads, bridges and ports.
- ◇ Creation of warehouses and storage facilities.
- ◇ Investment in inventories and productive equipment.

Thus, economic investment contributes directly to national development by increasing production, employment and income.

1.1.4.2 Physical Investment

A transport company purchasing buses, a farmer buying tractors or an entrepreneur constructing a commercial building are making physical investments. These investments



create physical assets that generate future income. Physical investment refers to investment in tangible or real assets that can be seen and touched. These assets are used for production or income generation.

Examples of physical investment include:

- ◇ Land
- ◇ Buildings
- ◇ Plant and machinery
- ◇ Vehicles
- ◇ Gold
- ◇ Inventories
- ◇ Agricultural equipment

Physical investments generally require substantial capital and often appreciate over time.

1.1.4.3 Financial Investment

Midhun invests his savings in equity shares, debentures, bank deposits and mutual funds. These investments provide him with dividends, interest and appreciation in market value. Such investments are known as financial investments because they create financial assets rather than physical assets. In the financial sense, investment refers to the commitment of funds to acquire financial assets to earn future income in the form of interest, dividends, pension benefits or capital appreciation.

Examples of financial investment include:

- ◇ Equity shares
- ◇ Preference shares
- ◇ Debentures
- ◇ Government securities
- ◇ Treasury Bills
- ◇ Mutual Funds
- ◇ Bank Fixed Deposits
- ◇ Public Provident Fund (PPF)
- ◇ National Savings Certificates (NSC)
- ◇ Insurance policies
- ◇ Pension schemes

Financial investments create financial assets; the funds mobilised through them are ultimately used to create physical assets and promote economic development.

1.1.4.4 Relationship between Economic, Physical and Financial Investment

Economic, physical and financial investments are closely related. When investors purchase shares or debentures, they provide financial resources to companies. The companies use these funds to purchase land, buildings and machinery, thereby creating physical assets. These physical assets increase production, generate employment and contribute to the country's economic growth. Therefore, financial investment supports physical investment, and physical investment leads to economic investment.

Economic, physical and financial investments are closely interconnected. Consider NE Exports, a company engaged in exporting spices from Kerala. The company plans to expand its business by establishing a new processing unit. To raise funds, Anil, the Managing Director, issues shares and debentures to investors. Satheesh, along with many other investors, purchases these financial instruments. This is known as financial investment because investors provide money to the company by acquiring financial assets. NE Exports then uses the funds to purchase land, construct a factory building, install processing machinery and buy modern equipment. These are physical investments because they create tangible assets. Once the new unit begins operations, the company increases its production, creates employment opportunities, boosts exports and contributes to the country's national income. This represents economic investment because it adds to the productive capacity of the economy. Thus, the story shows that financial investment provides funds for physical investment, and physical investment ultimately results in economic investment and national development.

1.1.5 Corporate v/s Personal Investment

DKV Companies is a leading food processing and export company. Geethamani, the Managing Director of DKV Companies, plans to expand the business by establishing a new manufacturing unit. The company invests ₹8 crore in purchasing land, constructing a modern factory, installing advanced machinery and adopting the latest technology. The objective of this investment is to increase production capacity, improve product quality, expand into international markets, create employment opportunities and maximise the company's profits. Since this investment is made by a business organisation for its growth and expansion, it is called corporate investment.

At the same time, Mr. Viswabharan, an Accounts Manager working at DKV Companies, receives a monthly salary. After meeting his household expenses, he regularly saves a portion of his income. Instead of keeping the money idle, he invests it in bank fixed deposits, mutual funds, Public Provident Fund (PPF) and government securities. He aims to earn regular returns, build wealth, provide quality education for his children, purchase a house and enjoy a financially secure retirement. Since the investment is made by an individual using his personal savings to achieve personal financial goals, it is known as personal investment.

This example clearly shows that although both Ms. Geethamani and Mr. Viswabharan invest money, their purpose is different. Ms. Geethamani's investment focuses on expanding the business, increasing profits and creating employment, whereas Mr.



Viswabharan's investment focuses on personal financial security, wealth creation and achieving future life goals. Thus, corporate investment is undertaken by business organisations for business growth, while personal investment is undertaken by individuals to secure their financial future.

Investment decisions are made not only by individuals but also by business organisations. Both individuals and companies invest their money to earn future benefits, their purpose, investment size, decision-making process and expected outcomes differ significantly. Personal investment mainly focuses on achieving individual financial goals and ensuring future financial security, whereas corporate investment aims to expand business operations, increase profitability, and enhance shareholders' wealth.

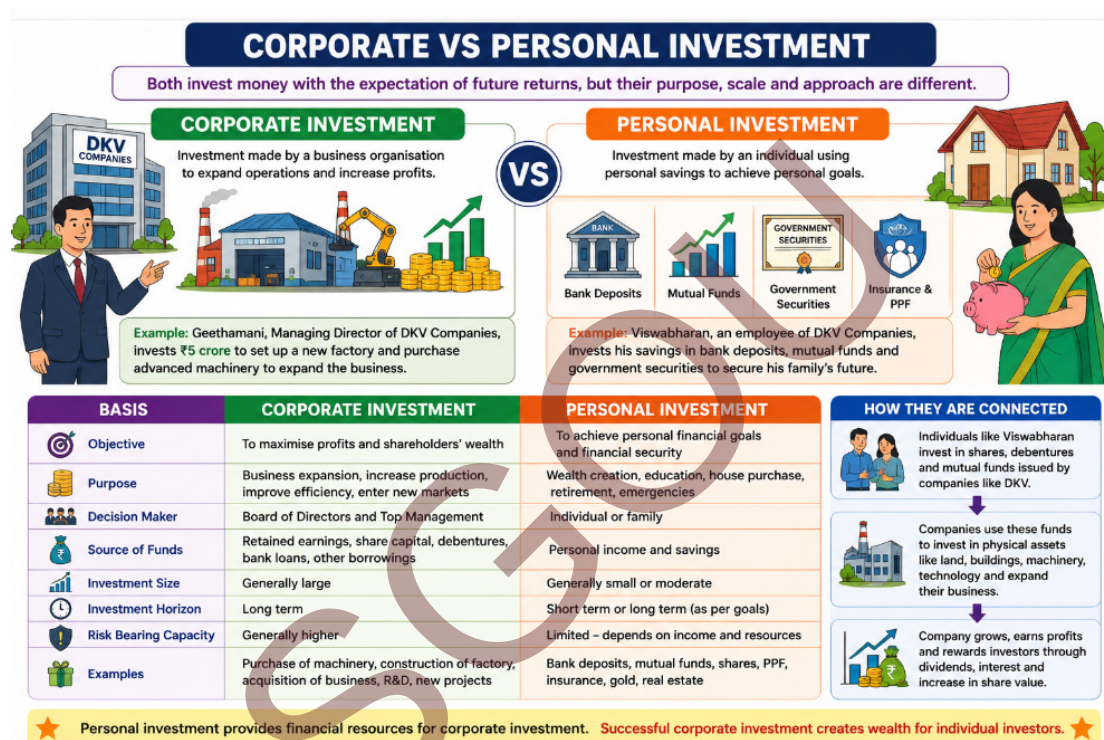


Figure 1.1.2 Corporate vs Personal Investment

1.1.5.1 Personal Investment

Personal investment refers to the investment made by an individual using their personal savings to achieve future financial goals. Individuals invest primarily to earn returns, create wealth, protect themselves against inflation and ensure financial security.

Personal investments are generally made after analysing the investor's income, risk tolerance, age, financial objectives and investment horizon. The following are the objectives of personal Investment:

- ◇ To earn regular income through interest, dividends or rent.
- ◇ To create long-term wealth.
- ◇ To achieve financial goals such as education, marriage, home purchase and retirement.

- ◇ To provide financial security during emergencies.
- ◇ To protect savings against inflation.

Examples of Personal Investment include:

- ◇ Bank Fixed Deposits
- ◇ Public Provident Fund (PPF)
- ◇ National Savings Certificates (NSC)
- ◇ Mutual Funds
- ◇ Equity Shares
- ◇ Government Securities
- ◇ Gold
- ◇ Real Estate
- ◇ Insurance Policies
- ◇ Pension Schemes

1.1.5.2 Corporate Investment

Corporate investment refers to the investment made by business organisations using their financial resources to expand operations, improve efficiency and maximise shareholders' wealth. Such investments are generally large in size and involve detailed financial analysis before decisions are made. Corporate investments focus on increasing production capacity, introducing new technology, entering new markets and improving long-term profitability. The following are the Objectives of corporate investment:

- ◇ To maximise profits.
- ◇ To increase shareholders' wealth.
- ◇ To expand production capacity.
- ◇ To modernise plant and machinery.
- ◇ To improve productivity and operational efficiency.
- ◇ To enter new domestic and international markets.
- ◇ To strengthen the company's competitive position.

Examples of Corporate Investment include:

- ◇ Construction of factories.
- ◇ Purchase of plant and machinery.
- ◇ Investment in research and development.
- ◇ Acquisition of another company.
- ◇ Expansion of production facilities.
- ◇ Investment in new technology.
- ◇ Development of warehouses and logistics infrastructure.



Table 1.1.1 Difference between Corporate and Personal Investment

Basis	Personal Investment	Corporate Investment
Meaning	Investment made by an individual using personal savings.	Investment made by a business organisation using corporate funds.
Primary Objective	Achieving personal financial goals and financial security.	Maximising profits and shareholders' wealth.
Investor	Individual investor.	Company or business organisation.
Source of Funds	Personal income and savings.	Company's retained earnings, equity and borrowed funds.
Investment Size	Generally small or moderate.	Usually large-scale investments.
Decision Maker	Individual investor or family.	Board of Directors and management.
Risk Bearing Capacity	Depends on the individual's income and financial condition.	Generally higher due to larger financial resources.
Investment Horizon	Depends on personal goals and life stage.	Usually, long-term business expansion and growth.

1.1.5.3 Relationship between Personal and Corporate Investment

Personal and corporate investments are closely connected. Individuals invest their savings in shares, debentures and mutual funds issued by companies. These funds become a source of finance for businesses. Companies then utilise these funds to purchase land, buildings, machinery and technology, thereby expanding production and creating employment opportunities. As companies grow and earn profits, they distribute dividends and increase the value of shares, benefiting individual investors. Thus, personal investments provide financial resources for corporate investments, while successful corporate investments generate returns and wealth for individual investors.

To understand the relationship between personal investment and corporate investment, consider the example of Raj Finance Ltd. & Ms. Madhumathi. Ms. Madhumathi is a school teacher, who regularly saves a part of her monthly salary. Instead of keeping her savings idle, she purchases shares and debentures of Raj Finance Ltd. She also invests in a mutual fund. Through these investments, Ms. Madhumathi becomes an investor & Raj Finance Ltd. uses the money collected from thousands of investors like Ms. Madhumathi to open new branches, purchase modern computer systems, introduce digital banking services, recruit skilled employees and expand its lending business. These business investments help the company serve more customers, increase its profits and strengthen its position in the financial market. As the company's performance improves, it declares dividends to its shareholders, pays interest on debentures and the market value of its shares also increases. As a result, Ms. Madhumathi receives regular income and her investment grows in value.

This story clearly shows that Ms.Madhumathi's personal investment becomes a source of finance for Raj Finance Ltd.'s corporate investment. In turn, the company's successful corporate investment generates profits, which are shared with investors like Ms. Madhumathi through dividends, interest and capital appreciation. Therefore, personal investment supports corporate investment, and successful corporate investment creates wealth for individual investors.

Recap

- ◇ Investment means committing present funds with the expectation of earning future returns.
- ◇ Economic investment creates productive assets and increases national income.
- ◇ Physical investment creates tangible assets such as land, buildings and machinery.
- ◇ Financial investment creates financial assets such as shares, bonds, bank deposits and mutual funds.
- ◇ Personal investment is made by individuals to achieve financial security and future financial goals.
- ◇ Corporate investment is made by companies to increase profitability, expand business operations and maximise shareholders' wealth.

Objective Questions

1. What is the commitment of present funds with the expectation of earning future returns?
2. What is the uncertainty that the actual return may differ from the expected return called?
3. Which type of investment increases the productive capacity of the economy?
4. Which type of investment involves tangible assets that can be seen and touched?
5. Which type of investment creates financial assets such as shares and debentures?
6. What is the increase in the value of an investment over time known as?
7. Which type of investment is made by individuals using their personal savings?
8. Which type of investment is undertaken by business organisations to expand business operations?



Answers

1. Investment
2. Investment Risk
3. Economic Investment
4. Physical Investment
5. Financial Investment
6. Capital Appreciation
7. Personal Investment
8. Corporate Investment

Self-Assessment Questions

1. Discuss the meaning and importance of Investment,
2. Write a short note on the dimensions of investments
3. Differentiate corporate investment and personal investment.
4. List five examples for each dimension of investments.
5. Explain the relationship between economic, physical and financial investment in detail.

Assignments

1. Select a listed Indian company and examine how it has utilised corporate investments to achieve business expansion and long-term growth.
2. Prepare a case study illustrating the relationship between personal investment and corporate investment using a real company as an example.
3. Prepare a report explaining how financial investments are transformed into physical investments and contribute to economic development with suitable real-life examples

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Unit 2

Investment Objectives

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ Identify the objectives of investment
- ◇ Discuss the factors affecting investment decisions
- ◇ Explain the stages or process of investment

Prerequisite

Ms Madhavi, a commerce graduate, got employment in a corporate organisation, and on the day she received her first salary, she was excited. Her father smiled and said, “Saving money is good, but making money grow wisely is even better.” He took her to a small nursery and asked her to buy a mango sapling. “If you simply keep the sapling in a corner, it will never become a tree,” he explained. “You must choose the right place, prepare the soil, water it regularly, protect it from pests and prune its branches from time to time. Only then will it grow into a healthy tree that gives fruit for many years.” As they walked home, Ms. Madhavi realised that investing money is very similar to growing a tree. Successful investment is not a matter of luck or chance. It requires careful planning, selecting the right investment, analysing its strengths, building a balanced portfolio and reviewing it regularly as economic conditions change. Just as a well-cared-for tree rewards its owner with abundant fruit, a well-managed investment can provide financial security and long-term wealth. In this unit, you will learn the systematic investment process that helps investors make informed decisions and achieve their financial goals.

Keywords

Investment Policy, Investment Analysis, Valuation of Securities, Portfolio Construction, Portfolio Diversification.

Discussion

An investment objective is a clearly defined financial goal that directs an investor's decision making process. It serves as a financial road map, balancing your personal timeline and tolerance for risk with the returns needed to reach your targets. It is the process of committing money or other resources to an asset with the expectation of earning future income or increasing the value of the asset over time. Instead of keeping money idle, individuals and organisations invest their savings in different types of assets so that they can earn returns and achieve their financial goals. In simple words, investment means sacrificing present consumption for future benefits. The investor expects that the money invested today will generate additional income or appreciate in the future. An investment may be made in physical assets such as land, buildings, machinery and gold, or in financial assets such as shares, debentures, bonds, bank deposits and mutual funds. Investment plays an important role in economic development. When individuals invest their savings in financial instruments, the funds are channelled to businesses and governments. These funds are then used to create physical assets such as factories, roads, hospitals and infrastructure, thereby generating employment and promoting economic growth.

Suppose Mathumathi has ₹2,00,000 as savings. If she keeps the money at home, it remains idle and does not generate any income. Instead, she deposits ₹1,00,000 in a bank and invests the remaining ₹1,00,000 in the shares of Raj Finance Ltd. The bank pays her interest, while the shares may provide dividends and increase in value over time. Thus, her savings generate future income and wealth. This is called investment.

1.2.1 Characteristics (Features) of Investment

Every investment possesses certain basic characteristics. These characteristics help investors compare various investment opportunities and select the most suitable investment according to their financial objectives and risk-bearing capacity.

1. Return

Investors invest their funds to make a profit, which is known as return. The goal of investment is to maximise the expected returns and minimise the investor's utility. Return is the most important feature of an investment. The primary purpose of investing is to earn income or increase wealth. Returns may be received in two forms:

- ◇ **Yield:** Yield refers to the regular income earned from an investment, such as interest on bank deposits, dividends on shares and rental income from property.
- ◇ **Capital Appreciation:** Capital appreciation refers to the increase in the value of an investment over time. It is the difference between the purchase price and the selling price of an asset.

Ms. Madhumathi, invests Rs.1,00,000 in the shares of Raj Finance Ltd. During the year, the company pays her a dividend of Rs.6,000, and by the end of the year the market



value of her shares increases to RS.1,20,000. The Rs.6,000 dividend is called yield because it is the regular income earned from the investment. The Rs.20,000 increase in the value of the shares (RS.1,20,000 – Rs.1,00,000) is called capital appreciation because it represents the increase in the market value of the investment. Thus, yield is the income generated from an investment, whereas capital appreciation is the increase in the investment's value over time. The amount of return depends upon several factors such as the nature of the investment, market conditions, maturity period and the level of risk involved. Generally, investments carrying higher risk offer the possibility of higher returns.

2. Risk

Risk is an unavoidable characteristic of every investment. It refers to the possibility that the actual return may differ from the expected return or that the investor may lose part or all of the invested capital. Investment risk may arise because of loss of capital, delay in repayment, non-payment of interest or dividend, changes in market prices, economic slowdown or poor financial performance of the issuing company. Most investors are risk-averse. They must be aware of the risks in different investments. To have a higher return, the investors should be able to accept the fact that they have to face higher risk.

The level of risk depends on several factors.

- i. **Maturity Period:** Investments with longer maturity periods generally involve higher risk because future conditions are uncertain.
- ii. **Creditworthiness of the Borrower:** If the borrower has a strong financial position and good repayment capacity, the investment is less risky. Poor creditworthiness increases investment risk.
- iii. **Nature of the Investment:** Government securities and bank deposits are considered low-risk investments, while corporate debentures involve moderate risk. Equity shares are regarded as high-risk investments because their prices fluctuate according to market conditions.

There is a direct relationship between risk and return. Higher-risk investments generally provide the opportunity to earn higher returns, whereas lower-risk investments usually provide lower but more stable returns.

3. Safety

Safety refers to the assurance that the invested capital will be returned without loss and within the expected time. Investors always prefer investments that protect their principal amount while generating a reasonable return. Safe investments are characterised by low financial risk, timely repayment, stable income and reliability. Government securities, bank fixed deposits, National Savings Certificates and Post Office savings schemes are examples of relatively safe investments. Although safety is highly desirable, safer investments usually offer lower returns than riskier investments.

4. Liquidity

Liquidity refers to the ability to convert an investment into cash quickly without suffering a significant loss in value. Liquidity is important because investors may require

immediate cash to meet unexpected financial needs. Investments such as equity shares listed on recognised stock exchanges and open-ended mutual funds are highly liquid because they can be sold easily. On the other hand, fixed deposits, National Savings Certificates, Public Provident Fund and real estate have relatively lower liquidity. An investor generally prefers investments that provide a reasonable balance between liquidity, safety, risk and return.

1.2.2 Objectives of Investment

People invest their savings with the expectation of achieving different financial and personal goals. Merely saving money is not sufficient because idle money does not generate income and gradually loses its purchasing power due to inflation. Investment enables individuals to make productive use of their savings by earning regular income, creating wealth and meeting future financial needs. Every investor has different financial circumstances, responsibilities and expectations. A young employee may invest to purchase a house, while a retired person may invest to earn a regular monthly income. Therefore, investment decisions are guided by specific objectives that help investors select suitable investment avenues according to their needs and risk-bearing capacity. The major objectives of investment are explained below.

1. Maximisation of Return

The primary objective of every investment is to maximise returns. Investors expect their savings to generate additional income or increase in value over time. Returns may be received in two forms: yield and capital appreciation. Yield refers to the regular income earned from an investment, such as interest on bank deposits, dividends on shares or rent from property. Capital appreciation refers to the increase in the market value of an investment over time.

Arun invests ₹2,00,000 in the shares of a reputed company. During the year, he receives a dividend of ₹12,000 and, after two years, the value of his shares increases to ₹2,60,000. The dividend represents the yield, while the increase of ₹60,000 in the value of the shares represents capital appreciation. Thus, Arun earns returns both as regular income and as an increase in the value of his investment.

2. Minimisation of Risk

Every investment involves some degree of risk. Therefore, another important objective of investment is to minimise the possibility of financial loss while earning satisfactory returns. Investment risk refers to the uncertainty regarding future returns or the possibility of losing part or all of the invested capital. Risk may arise because of fluctuations in market prices, delay in repayment, default in payment of interest or dividend, or poor financial performance of the issuing organisation.

Investors can reduce risk by selecting financially sound investment avenues and by diversifying their investments among different securities instead of investing all their money in a single asset. Lakshmi has ₹5,00,000 available for investment. Instead of investing the entire amount in the shares of one company, she invests part of the money in government securities, part in mutual funds and the remaining amount in bank fixed



deposits. Even if one investment performs poorly, the other investments help reduce her overall loss. This strategy enables her to minimise risk while earning a reasonable return.

It is important to remember that risk and return are directly related. Investments with higher risk generally provide the opportunity to earn higher returns, whereas investments with lower risk usually provide lower but more stable returns. Therefore, every investor should select investments according to their financial objectives and risk-bearing capacity.

3. Protection against Inflation (Hedge against Inflation)

Inflation refers to the continuous increase in the prices of goods and services, which reduces the purchasing power of money over time. If savings are kept idle, they gradually lose their value because the same amount of money can purchase fewer goods and services in the future. Therefore, one of the important objectives of investment is to protect wealth against inflation. An investment acts as a hedge against inflation when it earns a return that is higher than the rate of inflation. Only then can the investor maintain or increase the real value of wealth.

Suppose Meera keeps ₹1,00,000 in cash at home for three years. During this period, the prices of goods increase significantly because of inflation. As a result, the purchasing power of her money declines. If she had invested the money in a mutual fund earning 12% annually while inflation remained at 6%, her investment would have grown at a faster rate than the increase in prices. Thus, the investment would have protected her wealth against inflation and increased her real purchasing power. Therefore, investors should select investment avenues that provide returns capable of offsetting the effects of inflation.

4. Provision of Liquidity

Liquidity refers to the ability of an investment to be converted into cash quickly without a significant loss in value. Investors may require money at any time to meet emergency expenses such as medical treatment, higher education or unexpected family commitments. Hence, liquidity is an important objective while selecting investments. Highly liquid investments allow investors to access their funds quickly whenever required. Investments such as listed equity shares, money market instruments and certain mutual funds can usually be converted into cash without much difficulty. On the other hand, investments such as real estate or long-term deposits may take more time to sell or withdraw. Joseph invests a portion of his savings in a liquid mutual fund because he expects that he may need money within a few months for his daughter's university admission. Since the investment can be converted into cash easily, Joseph can meet his financial requirement without much difficulty. This illustrates the importance of liquidity in investment planning.

5. Tax Benefits

Many investors also make investments to reduce their tax liability within the provisions of the law. Certain investment schemes provide tax deductions or exemptions, thereby

increasing the net return available to the investor. Tax planning is an important aspect of investment because the amount of tax payable directly affects the actual income earned from an investment. For example, Neha wishes to reduce her income tax liability while saving for the future. She invests in a Public Provident Fund (PPF) and the National Pension System (NPS), both of which provide tax benefits under the Income-tax Act. As a result, she not only creates long-term savings but also reduces the amount of income tax payable. Thus, investment helps her achieve two objectives simultaneously: wealth creation and tax savings.

6. Compliance with Legal Provisions

Every investment should comply with the laws and regulations of the country. Investors should ensure that their investments are made through authorised institutions and in accordance with applicable legal provisions. Investments made in illegal or unauthorised schemes may expose investors to financial loss and legal complications. Ravi plans to invest a large sum of money. Before investing, he verifies whether the company is registered with the appropriate regulatory authorities and whether the investment scheme complies with legal requirements. By doing so, he protects his investment and avoids unnecessary legal risks. Therefore, compliance with legal provisions is an important objective of investment.

7. Promotion of Healthy Speculation

Investment also encourages healthy speculation in financial markets. Speculation involves buying or selling securities with the expectation of earning profits from short-term price movements. Unlike long-term investors, speculators focus mainly on changes in market prices rather than regular income. For example, Akhil closely follows stock market trends and expects a company's share price to rise after the announcement of strong financial results. He purchases the shares and sells them a few weeks later when the price increases, thereby earning a profit. Although speculation involves higher risk, informed speculation improves market liquidity and facilitates efficient price discovery. Therefore, investment also contributes to healthy speculation in organised financial markets.

8. Enhancing Opportunities for Arbitrage

Another objective of investment is to facilitate arbitrage opportunities. Arbitrage refers to earning profit by taking advantage of price differences for the same asset in different markets. An arbitrageur simultaneously purchases an asset in one market where the price is lower and sells it in another market where the price is higher. For example, Kiran notices that the shares of a company are trading at a slightly lower price in one market than in another. He purchases the shares in the market with the lower price and immediately sells them in the market with the higher price, thereby earning a small profit from the price difference. Such activities improve market efficiency by reducing price differences across markets.

Investment is not the same for everyone. A good investment for one person may not be suitable for another because people have different financial situations, goals and



preferences. Before investing, an investor should carefully consider several factors to choose the most suitable investment option.

1.2.3 Factors Affecting Investment Decision

The major factors affecting investment decisions are explained below.



Figure 1.2.1 Factors affecting investment

1. Time Horizon

Time horizon refers to the length of time an investor plans to keep money invested before it is needed. It is one of the most important factors in selecting an investment. Investors with a short time horizon generally prefer safe investments because they cannot afford large losses when they need their money soon. For example, a person saving money for a child's school admission next year is more likely to choose a bank savings account or a fixed deposit rather than shares, as these options provide greater safety. On the other hand, an investor saving for retirement after 25 years may invest in equity shares or equity mutual funds because there is enough time to recover from short-term market fluctuations and earn higher long-term returns.

2. Risk Tolerance

Risk tolerance is the willingness and ability of an investor to accept the possibility of losing money in order to earn higher returns. Every investment carries some level of risk, but the degree of risk differs. Some investors are comfortable with market fluctuations and are willing to invest in shares or equity mutual funds, expecting higher returns over time. Others prefer safer investments such as bank deposits or government securities, even if the returns are lower, because they value stability more than high profits. Therefore, the level of risk an investor is prepared to accept greatly influences the investment decision.

3. Investment Knowledge

An investor's knowledge and experience play an important role in selecting suitable investments. Investors who understand financial markets, risk, return and different investment products are usually able to make better investment decisions. An experienced investor who knows how share prices change with company performance may confidently invest in the stock market. In contrast, a beginner may choose mutual funds because professional fund managers make investment decisions on behalf of investors. Many investors also improve their knowledge by reading books, newspapers, financial magazines and online investment reports or by seeking advice from financial experts. Better knowledge helps investors build a balanced portfolio that matches their financial goals and risk level.

4. Income and Net Worth

An investor's income and net worth determine the amount of money available for investment and the range of investment choices. People with higher incomes and larger savings can invest in a wider variety of financial assets, including shares, bonds, real estate and diversified investment portfolios. A young employee who has recently started earning may invest a small amount every month in mutual funds, recurring deposits or government savings schemes. In contrast, a business owner with substantial financial resources may invest in shares, corporate bonds, commercial property and several other investment options at the same time. Thus, higher income and greater wealth provide more investment opportunities.

5. Tax Exposure

Tax considerations also influence investment decisions because different investments receive different tax treatment. Investors often choose investments that help reduce their tax liability while earning reasonable returns. For example, many individuals invest in tax-saving schemes such as the Public Provident Fund (PPF), National Savings Certificate (NSC) or Equity Linked Savings Scheme (ELSS) because these investments provide tax benefits under the Income Tax Act. Similarly, investors also consider how interest income, dividends and capital gains will be taxed before making an investment decision. Proper tax planning enables investors to maximise their post-tax returns.

6. Amount of Investment

The amount available for investment determines which investment alternatives are suitable. Investors with small amounts can easily invest in bank deposits, government



savings schemes, recurring deposits or mutual funds through systematic investment plans (SIPs), where even a small monthly contribution can build wealth over time. On the other hand, companies and wealthy individuals with large investment funds can diversify their investments across shares, debentures, bonds, real estate and other financial assets. Therefore, the size of the investment fund directly affects the choice of investment.

7. Purpose of Investment

Every investment should have a clear purpose because different financial goals require different investment options. Some investors want regular income, while others focus on wealth creation, tax saving, capital appreciation or maintaining liquidity. For example, a retired person who depends on investment income may prefer fixed deposits or government bonds that provide regular interest. In contrast, a young professional planning to build wealth over the next twenty years may choose equity shares or equity mutual funds, as these investments have greater potential for long-term growth. Thus, the purpose of investment guides the selection of suitable investment instruments.

8. Type of Investment Asset

The nature of the investment asset also affects investment decisions because each asset has different characteristics in terms of risk, return, liquidity and safety. Investors can choose from a wide range of assets such as equity shares, preference shares, debentures, bonds, bank deposits, mutual funds, government savings schemes, exchange traded funds (ETFs), real estate, gold, commodities and currencies. An investor seeking stable income may choose bonds or fixed deposits, while another investor expecting higher long-term returns may invest in equity shares. Therefore, understanding the features of each investment asset helps investors select the most appropriate option according to their financial objectives.

9. Investment Liquidity

Liquidity refers to the ease with which an investment can be converted into cash without a significant loss in value. Highly liquid investments can be sold quickly whenever money is needed, while less liquid investments may take more time to convert into cash. For example, shares listed on a stock exchange can usually be sold within a short period at the prevailing market price, making them relatively liquid. In contrast, real estate often takes weeks or even months to sell and may require accepting a lower price if the owner needs money urgently. Therefore, investors who expect to need funds at short notice generally prefer investments with higher liquidity.

Investment decisions are influenced by several personal and financial factors, including time horizon, risk tolerance, investment knowledge, income, tax benefits, investment amount, purpose, type of asset and liquidity. A careful evaluation of these factors helps investors select investments that match their financial goals, risk-bearing capacity and future needs. Making investment decisions after considering these factors improves the chances of achieving long-term financial security and wealth creation.

Investment is not simply the act of buying shares, bonds or any other financial asset. It is a systematic process that helps investors select suitable investment opportunities,

reduce risk and achieve their financial goals. A successful investor does not invest based on emotions, rumours or guesswork. Instead, every investment decision is made after careful planning, analysis and continuous monitoring.

1.2.4 The Investment Process (Stages in Investment)

Investment is not simply the act of buying shares, bonds or any other financial asset. It is a systematic process that helps investors select suitable investment opportunities, reduce risk and achieve their financial goals. A successful investor does not invest based on emotions, rumours or guesswork. Instead, every investment decision is made after careful planning, analysis and continuous monitoring. The investment process consists of a series of well-organised steps that guide an investor from identifying financial goals to reviewing investment performance. Following these stages helps investors make informed decisions and improve the chances of earning satisfactory returns while managing risk.

The major stages in the investment process are:

- ◇ Framing of Investment Policy
- ◇ Investment Analysis
- ◇ Valuation of Securities
- ◇ Portfolio Construction
- ◇ Portfolio Evaluation
- ◇ Portfolio Appraisal and Revision

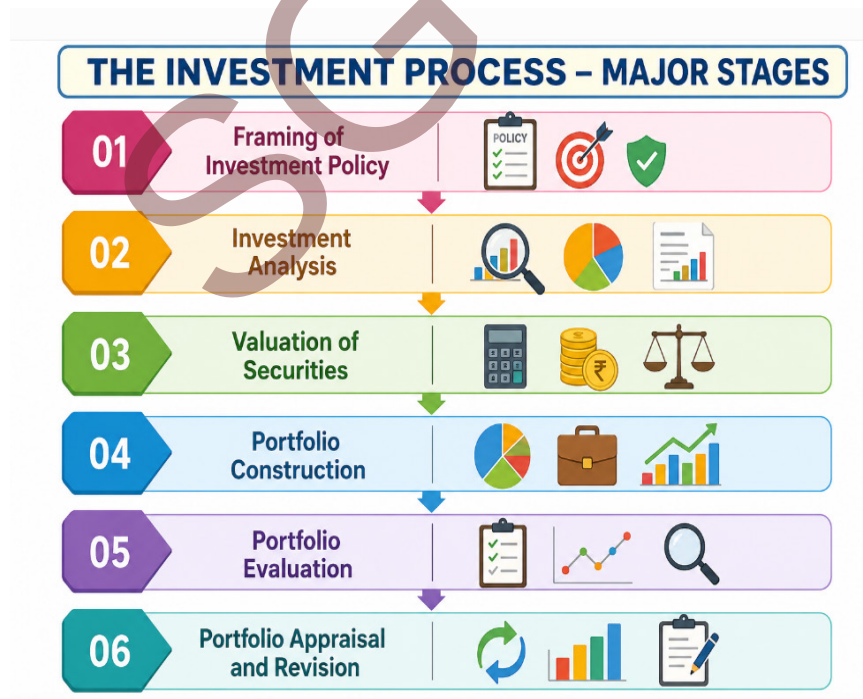


Figure 1.2.2 Investment process

1. Framing of Investment Policy

The first stage in the investment process is framing the investment policy. Before investing, an investor should clearly identify financial goals, estimate the amount available for investment, decide the investment period and understand the level of risk that can be accepted. The investor should also maintain an emergency fund so that unexpected expenses can be met without disturbing investments.

This stage forms the foundation of the entire investment process because every future investment decision depends on the objectives established at the beginning. A well-planned investment policy helps investors choose suitable investment avenues, avoid unnecessary risks and remain focused on achieving their financial goals. For example, a 30-year-old employee who plans to purchase a house after ten years may decide to invest regularly in equity mutual funds because the long investment period provides sufficient time to recover from market fluctuations and earn higher returns. In contrast, a retired person who depends on investment income for daily living expenses may prefer bank fixed deposits or government bonds because they provide greater safety and regular income.

2. Investment Analysis

After preparing the investment policy, the investor analyses the available investment opportunities. Investment analysis involves collecting and examining information about different investment alternatives before making a final decision. The investor compares various securities by considering expected return, level of risk, the company's financial strength, industry performance, market conditions, and future growth prospects.

The main objective of investment analysis is to identify investments that best match the investor's financial goals and risk-bearing capacity. Proper analysis reduces the possibility of making decisions based on rumours or emotion. If an investor wishes to invest in the pharmaceutical industry, the investor compares several pharmaceutical companies by examining their profits, sales growth, research activities, debt levels and future business opportunities. After analysing these factors, the investor selects the company that offers a better balance between risk and expected return.

3. Valuation of Securities

Once suitable investment alternatives have been identified, the next stage is the valuation of securities. Valuation is the process of estimating the intrinsic or real value of a security and comparing it with its current market price. This helps investors determine whether a security is fairly priced, undervalued or overvalued. Several methods are used to estimate the value of a security, including book value, earnings per share (EPS), price-earnings (P/E) ratio, dividend valuation and discounted cash flow methods. If the intrinsic value is higher than the market price, the investment may be considered attractive because its price has the potential to increase in the future. If the market price is significantly higher than its intrinsic value, the investor may avoid purchasing the security. For example, after analysing a company's financial statements, an investor estimates that the fair value of its share is ₹600, while the market price is only ₹500. Since the share appears undervalued, the investor may purchase it expecting the market price to increase over time.

4. Portfolio Construction

Portfolio construction refers to the process of selecting and combining different investment assets to achieve the investor's financial objectives while minimising risk. A portfolio may include equity shares, preference shares, bonds, debentures, mutual funds, bank deposits, government securities, gold, real estate and other investment assets. The most important principle of portfolio construction is diversification. Diversification means spreading investments across different assets rather than investing all the money in a single security. This reduces overall investment risk because poor performance of one investment may be balanced by better performance of others. An investor with ₹10,00,000 may invest ₹4,00,000 in equity shares, ₹2,50,000 in government bonds, ₹2,00,000 in mutual funds and ₹1,50,000 in gold. If the share market declines, the returns from bonds or gold may help reduce the overall loss and maintain the stability of the portfolio.

5. Portfolio Evaluation

Investment does not end after constructing a portfolio. The investor should regularly evaluate the portfolio to determine whether it is performing according to expectations. Portfolio evaluation is the systematic process of measuring the performance of the portfolio by comparing actual returns with expected returns and assessing whether the level of risk remains acceptable.

Changes in economic conditions, interest rates, inflation, government policies and company performance may influence the value of investments over time. Therefore, regular evaluation helps investors understand whether the portfolio continues to meet their financial objectives.

An investor expected the portfolio to generate an annual return of 12%, but at the end of the year the actual return is only 8%. By reviewing the portfolio, the investor may discover that one company has performed poorly while the other investments have generated satisfactory returns. This evaluation helps identify the investments that require further attention.

6. Portfolio Appraisal and Revision

The final stage in the investment process is portfolio appraisal and revision. Since financial markets and economic conditions change continuously, an investment portfolio should be reviewed periodically and modified whenever necessary. Portfolio appraisal involves examining the performance of individual investments and identifying whether any investment is no longer suitable for achieving the investor's financial objectives.

Portfolio revision involves replacing underperforming investments with better alternatives, changing the proportion of investments or introducing new investment assets to maintain the desired balance between return and risk. Suppose an investor finds that one company's shares have been giving poor returns for several years due to declining profits, while another company in the same industry is growing rapidly. After careful analysis, the investor may sell the poorly performing shares and invest the money in the better-performing company. Similarly, an investor approaching retirement



may gradually shift investments from equity shares to government securities and bank deposits to reduce risk and ensure a stable income.

When Hemanth received a bonus from his first job, he wanted to invest it wisely instead of spending it immediately. He first thought about why he was investing and decided that his goal was to save for buying a house in the future. This was his investment policy. Next, he compared different investment options such as shares, mutual funds and government bonds by studying their returns and risks. This was investment analysis. After choosing a few companies, he checked whether their shares were fairly priced before buying them, which was the valuation of securities. Instead of investing all his money in one place, he divided it among shares, mutual funds and bonds to reduce risk. This was portfolio construction. Every six months, Hemanth reviewed his investments to see whether they were earning the expected returns. This was portfolio evaluation. After two years, he found that one company's shares were performing poorly while another mutual fund was giving better returns. He sold the weak investment and invested in the better one. This final step was portfolio appraisal and revision. Hemanth realised that successful investing is like taking care of a garden it requires careful planning, selecting the right investments, monitoring them regularly and making timely changes to achieve long-term financial success. The investment process is a logical and systematic approach that helps investors make informed investment decisions. It begins with setting financial goals, followed by analysing investment alternatives, valuing securities, constructing a diversified portfolio, evaluating portfolio performance and revising the portfolio whenever necessary. Each stage plays an important role in balancing risk and return. Investors who carefully follow the investment process are more likely to achieve long-term financial security and accomplish their investment objectives.

Recap

- ◇ Investment is the process of committing money to financial or physical assets with the expectation of earning future income or increasing wealth.
- ◇ Every investment has four important characteristics that are; return, risk, safety and liquidity which help investors compare different investment alternatives.
- ◇ Investors make investments to achieve various objectives such as earning higher returns, reducing risk, protecting against inflation, maintaining liquidity, saving tax and achieving long-term financial goals.
- ◇ Investment decisions are influenced by several factors, including time horizon, risk tolerance, investment knowledge, income, tax considerations, investment amount, investment purpose, type of asset and liquidity needs.
- ◇ Every investor should select investment avenues that match personal financial goals, risk-bearing capacity and investment period rather than following others.

- ◇ Successful investing requires careful planning, proper analysis and informed decision-making, rather than depending on rumours, emotions or speculation.
- ◇ The investment process provides a systematic approach to making investment decisions and helps investors balance risk and return effectively.
- ◇ The major stages of the investment process are framing the investment policy, investment analysis, valuation of securities, portfolio construction, portfolio evaluation, and portfolio appraisal and revision.

Objective Questions

1. What is the regular income earned from an investment called?
2. What is the increase in the value of an investment over time called?
3. Which characteristic of an investment refers to the ability to convert it into cash quickly?
4. Which objective of investment protects wealth against rising prices?
5. What is the collection of different investment assets called?
6. Which stage of the investment process involves estimating the intrinsic value of a security?
7. Which stage of the investment process is concerned with setting financial goals before investing?
8. Which strategy reduces risk by spreading investments across different assets?
9. Which stage compares actual returns with expected returns?
10. Which stage involves replacing underperforming investments with better alternatives?

Answers

1. Yield
2. Capital Appreciation
3. Liquidity
4. Inflation Hedge



5. Portfolio
6. Valuation of Securities
7. Framing of Investment Policy
8. Diversification
9. Portfolio Evaluation
10. Portfolio Appraisal and Revision

Self-Assessment Questions

1. Explain the characteristics of investments
2. Discuss the objectives of investments
3. Describe the factors affecting investment decision
4. Essay on the process of investment.

Assignments

1. Visit the websites of any three investment options (such as a bank fixed deposit, mutual fund, equity share or government savings scheme). Compare them based on return, risk, safety and liquidity. Prepare a comparative table and recommend the most suitable investment for:
 - ◇ a college student,
 - ◇ a salaried employee, and
 - ◇ a retired person.Give reasons for your recommendations.
2. Interview any three individuals from different age groups (for example, a student, a working professional and a retired person). Identify their main reasons for investing and explain how their investment objectives differ. Based on your findings, suggest one suitable investment option for each person with proper justification.
3. Prepare a complete investment plan for a 30-year-old salaried employee who wants to accumulate funds to purchase a house after 10 years. Explain how each stage of the investment process.

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Unit

INVESTMENT AVENUES

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ Identify different fixed and variable income investment avenues
- ◇ Differentiate security and non-security investment avenues
- ◇ Comprehend the direct and indirect investment
- ◇ Gain idea about mortgage and reverse mortgage
- ◇ Get an overview about various gold investment avenues
- ◇ Explain the money market and capital market investment avenues

Prerequisite

Mr. Maheshan had saved ₹5 lakh after working for several years. He wanted his savings to grow, but he was confused about where to invest. His father suggested buying a piece of land, his friend recommended investing in shares, the bank manager advised a fixed deposit, and his colleague encouraged him to invest in mutual funds and gold. Mr. Maheshan soon realised that there was no single investment suitable for everyone. Each investment avenue offered different levels of return, risk, liquidity and safety. Therefore, before investing, an individual should understand the various investment avenues available and choose the one that best matches his or her financial goals, risk tolerance and investment horizon. This chapter explains the major investment avenues and their features to help investors make informed investment decisions.

Keywords

Investment Avenues, Security Investments, Non-Security Investments, Fixed Income Investment, Variable Income Investment, Direct Investment, Indirect Investment, Mortgage, Reverse Mortgage, Capital Market Instruments.

Discussion

Investment avenues refer to the various alternatives available for investing money with the objective of earning income, preserving capital, or creating wealth in the future. Every investor has different financial goals, income levels, risk tolerance and investment horizons. Therefore, no single investment avenue is suitable for everyone. A young professional may prefer equity shares for long-term wealth creation, whereas a retired person may prefer fixed deposits that provide regular income with low risk. Selecting the appropriate investment avenue requires evaluating factors such as safety, return, liquidity, tax benefits, market conditions and investment objectives. A diversified investment across different avenues helps reduce risk while improving overall returns. Mr. Anwar receives a bonus of ₹5,00,000. Instead of investing the entire amount in one place, he invests ₹2,00,000 in equity mutual funds for long-term growth, ₹2,00,000 in fixed deposits for safety, and ₹1,00,000 in Gold ETFs as protection against inflation. This diversification reduces risk while improving return potential.

1.3.1 Security and Non-Security Forms of Investment

Mr. Ravi received a bonus of ₹1,00,000 and wanted to invest it wisely. He used ₹1,00,000 to buy shares of a company, and the company gave him electronic proof of ownership in his Demat account. His friend Ms. Meera used her bonus ₹1,00,000 to buy a small piece of land. When Ravi asked their teacher about the difference, the teacher explained, "Ravi's investment is a security investment because he owns a financial security (shares), while Ms. Meera's investment is a non-security investment because she owns a real asset (land) instead of a financial security." This helped both friends understand that security investments are financial instruments, whereas non-security investments are investments in real assets.

Investment avenues can broadly be classified into Security Forms and Non-Security Forms.

1.3.1.1 Security Forms of Investment

Security investments are financial instruments that represent ownership or lending relationships. They can usually be bought and sold in financial markets.

Examples include:

- ◇ Equity Shares
- ◇ Preference Shares



- ◇ Debentures
- ◇ Government Bonds
- ◇ Treasury Bills
- ◇ Commercial Papers
- ◇ Mutual Funds
- ◇ Exchange Traded Funds (ETFs)

These investments are regulated by financial authorities and often provide liquidity through organised markets. Buying shares of Reliance Industries or purchasing Government Securities through RBI Retail Direct are examples of security investments.

1.3.1.2 Non-Security Forms of Investment

Non-security investments are investments in physical or tangible assets that are generally not traded in organised securities markets.

Examples include:

- ◇ Land
- ◇ Residential buildings
- ◇ Commercial property
- ◇ Gold jewellery
- ◇ Silver
- ◇ Artwork
- ◇ Antiques

These investments usually require larger capital and involve relatively lower liquidity. Purchasing a house in Kochi for rental income is a non-security investment.

Table 1.3.1 Difference between Security and Non-Security Investments

Basis	Security Investment	Non-Security Investment
Form	Financial asset	Physical asset
Liquidity	Usually, high	Comparatively low
Marketability	Easily transferable	Difficult to transfer
Regulation	Highly regulated	Less regulated
Examples	Shares, Bonds	Land, Gold, Buildings

1.3.2 Fixed Income vs Variable Income Investment

Mr. Ramesh received a bonus of ₹2,00,000 and wanted to invest it. He divided the money into two equal parts. He invested ₹1,00,000 in a bank fixed deposit, which

promised 7% interest every year. The bank manager told him, "No matter what happens in the market, you will receive the fixed interest." This was a fixed income investment because the return was known in advance. He invested the other ₹1,00,000 in the shares of a growing company. His friend Mr.Karthik , explained, "The income from shares is not fixed. If the company performs well, you may receive high dividends and your share price may increase. If the company performs poorly, you may receive little or no return." This was a variable income investment because the return changes according to the company's performance and market conditions. Through this experience, Mr.Ramesh understood that fixed income investments provide stable and predictable returns, while variable income investments offer uncertain but potentially higher returns.

1.3.2.1 Fixed Income Investments

Fixed income investments provide predetermined returns to investors. The amount of interest or income is known in advance. These investments are generally preferred by conservative investors who seek stable income with lower risk. Features of this include the following:

- ◇ Fixed periodic income
- ◇ Lower investment risk
- ◇ Suitable for retired people
- ◇ Capital preservation
- ◇ Predictable cash flow

Examples

- ◇ Bank Fixed Deposits
- ◇ Government Bonds
- ◇ Treasury Bills
- ◇ Corporate Bonds
- ◇ Debentures
- ◇ Public Provident Fund (PPF)
- ◇ National Savings Certificates (NSC)

Mrs Lakshmi invests ₹2 lakh in a bank fixed deposit at 7% interest for five years. She receives a fixed income irrespective of stock market fluctuations.

1.3.2.2 Variable Income Investments

Variable income investments do not provide guaranteed returns. Income depends on business performance and market conditions. Although they involve higher risk, they offer greater opportunities for capital appreciation. Features of this include the following:

- ◇ No guaranteed income
- ◇ Higher return potential



- ◇ High market risk
- ◇ Suitable for long-term investors
- ◇ Capital appreciation

Examples

- ◇ Equity Shares
- ◇ Equity Mutual Funds
- ◇ Exchange Traded Funds (Equity ETFs)
- ◇ REITs
- ◇ Venture Capital Investments

Mr Raj purchased shares of Infosys at ₹1,500 each. After three years, the share price increased to ₹2,200. His return came mainly through capital appreciation.

1.3.3 Direct and Indirect Investments

Priya had ₹1,00,000 to invest. She used ₹50,000 to buy shares of a company directly through the stock market, making her the owner of those shares. This was a direct investment because she invested her money herself and made all the investment decisions. Her brother Arun invested the remaining ₹50,000 in a mutual fund, where professional fund managers selected and managed different shares and bonds on his behalf. This was an indirect investment because he invested through an intermediary instead of purchasing the securities directly. Thus, Priya learned that direct investment means investing directly in financial assets, while indirect investment means investing through institutions such as mutual funds that manage the investments for investors.

1.3.3.1 Direct Investment

Direct investment means purchasing investment assets directly in one's own name. The investor makes all investment decisions and bears the associated risks.

Examples include:

- ◇ Buying shares directly through a stock exchange
- ◇ Purchasing government bonds
- ◇ Buying land
- ◇ Purchasing commercial property

A person opens a Demat account and purchases 100 shares of Tata Motors directly.

1.3.3.2 Indirect Investment

Indirect investment means investing through financial intermediaries who manage the investments on behalf of investors.

Examples include:

- ◇ Mutual Funds
- ◇ Pension Funds
- ◇ Insurance-linked Investment Plans
- ◇ Portfolio Management Services
- ◇ Exchange Traded Funds

Instead of selecting individual shares, Anitha invests ₹5,000 every month in an equity mutual fund managed by professional fund managers.

Table 1.3.2 Difference between Direct and Indirect Investment

Direct Investment	Indirect Investment
Investor selects securities	Professional fund manager selects securities.
Requires investment knowledge	Suitable for beginners
Higher control	Less direct control
Higher responsibility	Professional management
Example: Buying shares	Example: Mutual Fund

1.3.4 Mortgage

A mortgage is a loan obtained by pledging immovable property as security. The borrower continues to own the property while the lender has the legal right over it until the loan is repaid. Mortgage financing is widely used for purchasing residential houses, commercial buildings and land. Features of the mortgage include the following:

- ◇ Property acts as collateral
- ◇ Long repayment period
- ◇ Fixed or floating interest rate
- ◇ Ownership remains with borrower after repayment

For example, Ramesh purchases a house worth ₹60 lakh by taking a housing loan from a bank. The house is mortgaged until the loan is fully repaid.

1.3.5 Reverse Mortgage

After retirement, Raghavan, a 68-year-old retired teacher, owned a house but had very little monthly income. He did not want to sell his home because he wished to continue living there. A bank suggested a reverse mortgage. The bank agreed to pay him a fixed amount every month by using the value of his house as security, while Raghavan continued to live in the house. After his lifetime, the bank would recover the amount by



selling the house, or his children could repay the loan and keep the house. Through this, Raghavan understood that a reverse mortgage helps senior citizens convert the value of their home into regular income without selling or leaving the house. A reverse mortgage is a financial arrangement designed mainly for senior citizens. Under this scheme, the owner of a residential house receives periodic income from a bank without selling the property. The repayment is made only after the owner's death or when the property is sold. Features of reverse mortgage include the following:

- ◇ Available mainly for senior citizens
- ◇ Regular monthly income
- ◇ No monthly repayment during lifetime
- ◇ Property ownership remains with borrower

A retired couple owns a house worth ₹1 crore. They receive ₹35,000 every month from the bank through a reverse mortgage while continuing to live in their own house.

1.3.6 Real Estate Investment

Athena had ₹10 lakh in savings and wanted to invest for the future. Instead of keeping the money in a savings account, she bought a small apartment near a college. She rented it to students and received monthly rental income. After a few years, the value of the apartment increased, and she sold it at a much higher price, earning a good profit. Anitha realized that real estate investment not only provides regular rental income but also offers capital appreciation when the property's value increases over time. Real estate investment refers to investing in land and buildings to earn rental income or capital appreciation. Following are the different types of real estate investment:

- ◇ Residential property
- ◇ Commercial property
- ◇ Industrial property
- ◇ Agricultural land
- ◇ Real Estate Investment Trusts (REITs)

Table 1.3.3 Advantages and limitations of real estate Investment

Advantages	Explanation	Limitations	Explanation
Capital Appreciation	The value of land and buildings generally increases over time, enabling investors to earn capital gains when the property is sold.	High Initial Investment	Purchasing real estate requires a substantial amount of capital for down payment, registration, and other related expenses.
Rental Income	Residential and commercial properties generate a regular and stable source of income through rent.	Low Liquidity	Real estate cannot be sold quickly like shares or bonds. It may take several months to find a suitable buyer.
Inflation Hedge	Property values and rental income usually increase with inflation, helping investors preserve their purchasing power.	Legal Complexities	Property investments involve legal formalities such as title verification, registration, taxation, zoning regulations, and ownership documentation.
Tangible Asset	Real estate is a physical asset that can be seen, used, and occupied, providing investors with a sense of security.	Maintenance Expenses	Owners must bear recurring expenses such as repairs, maintenance, insurance, property tax, and renovation costs.

An investor purchases an apartment in Bengaluru and earns monthly rental income while the property's market value appreciates over time.

1.3.7 Investment in Gold

When Lakshmi received ₹1,00,000 as a festival bonus, she decided to invest it in gold. Over the next few years, the price of gold increased, and when she sold it, she earned a good profit. Lakshmi realized that gold is a popular investment because it helps preserve wealth and its value often increases over time, especially during periods of economic uncertainty. Gold has been one of the oldest and most trusted investment avenues. It is widely used as a hedge against inflation and economic uncertainty.



1.3.7.1 Physical Gold

Physical Gold refers to gold that is owned and held in a tangible form. It includes gold jewellery, gold coins, and gold bars or biscuits. People purchase physical gold for investment, savings, gifts, and cultural or religious purposes. The value of physical gold generally increases over time, making it a popular long-term investment. But, investors should also consider additional costs such as making charges (for jewellery), storage expenses, insurance, and the risk of theft. Unlike financial forms of gold, physical gold requires safe storage and regular maintenance.

Advantages

- ◇ Easy to understand
- ◇ High emotional value
- ◇ Accepted worldwide

Limitations

- ◇ Storage cost
- ◇ Risk of theft
- ◇ Making charges
- ◇ Purity issues
- ◇ Buying 24-carat gold coins from a bank.

1.3.7.2 Gold Exchange Traded Funds (Gold ETFs)

Gold Exchange Traded Funds (Gold ETFs) are financial instruments that allow investors to invest in gold without purchasing or storing physical gold. Each unit of a Gold ETF represents a specific quantity of gold and is backed by physical gold of high purity. Gold ETFs are listed and traded on recognised stock exchanges, just like shares, and can be bought or sold through a Demat and trading account during market hours.

The value of a Gold ETF changes according to the market price of gold. Investors can benefit from the increase in gold prices without worrying about storage, insurance, purity, or the risk of theft associated with physical gold. Gold ETFs are highly liquid, transparent, and convenient, making them a popular investment option for individuals seeking exposure to gold as part of a diversified investment portfolio. But investors may have to bear fund management expenses and brokerage charges, and a Demat account is required to invest in Gold ETFs.

Advantages

- ◇ No storage problem
- ◇ High purity
- ◇ Easy buying and selling
- ◇ Transparent pricing

Limitations

- ◇ Requires a Demat account
- ◇ Annual management charges
- ◇ Purchasing Gold ETF units through NSE using a Demat account is a complex process

1.3.7.3 Sovereign Gold Bonds (SGBs)

Sovereign Gold Bonds (SGBs) are government securities issued by the Government of India as an alternative to buying physical gold. Instead of purchasing gold jewellery, coins, or bars, investors buy bonds whose value is denominated in grams of gold. This means the value of the investment increases or decreases according to the market price of gold. One of the major advantages of Sovereign Gold Bonds is that investors earn two types of returns. First, they receive a fixed annual interest on the amount invested, which is paid periodically by the government. Second, they benefit from capital appreciation if the market price of gold rises during the investment period. Since the bonds are backed by the Government of India, they are considered a safe and secure investment. Moreover, investors do not have to worry about storage, purity, insurance, or the risk of theft, as they do with physical gold.

Sovereign Gold Bonds usually have a fixed maturity period, making them more suitable for long-term investors who wish to earn regular interest while also benefiting from the appreciation in gold prices.

Advantages

- ◇ Government-backed security
- ◇ Periodic interest income
- ◇ No storage cost
- ◇ Capital gains tax benefits on redemption (subject to prevailing tax rules)

Limitations

- ◇ Lock-in period
- ◇ Limited liquidity before maturity
- ◇ Fresh issuances have been discontinued by the Government, although existing bonds continue until maturity.

An investor purchases 20 grams of Sovereign Gold Bonds and receives annual interest while benefiting from any increase in gold prices.



Table 1.3.4 Relative Advantages and Limitations of Gold Investments

Investment	Advantages	Limitations
Physical Gold	Easy ownership	Storage, theft and making charges
Gold ETF	Convenient and liquid	Requires a Demat account and an expense ratio (Annual fee for the fund company that stores the actual gold for you)
Sovereign Gold Bond	Interest plus price appreciation	Lock-in period and no new issues currently

1.3.8 Money Market Instruments

Money Market Instruments are short-term financial instruments used for borrowing and lending money for a period of up to one year. They help governments, banks, financial institutions, and companies meet their short-term financial needs. Since these instruments have a short maturity period, they are considered highly liquid, meaning they can be easily converted into cash. They are also relatively low-risk investments and generally provide moderate returns. Money market instruments play an important role in maintaining liquidity and stability in the financial system. The major money market instruments are explained below.

1.3.8.1 Treasury Bills (T-Bills)

Treasury Bills (T-Bills) are short-term debt instruments issued by the Government of India to meet its temporary financial requirements. They are considered one of the safest investment options because they are backed by the Government of India. Treasury Bills do not pay regular interest. Instead, they are issued at a discount to their face value and redeemed at the full-face value on maturity. The difference between the purchase price and the face value represents the investor's return. Treasury Bills are generally available with maturities of 91 days, 182 days, and 364 days.

Example: A commercial bank purchases a 91-day Treasury Bill with a face value of ₹1,00,000 for ₹98,500. After 91 days, the Government repays ₹1,00,000. The bank earns ₹1,500 as its return.

1.3.8.2 Commercial Paper (CP)

Commercial Paper (CP) is a short-term unsecured promissory note issued by financially sound companies to raise funds for their short-term business needs, such as purchasing raw materials, paying salaries, or meeting working capital requirements. Since Commercial Paper is unsecured, it is issued only by companies with a strong financial position and good credit rating. It usually carries a higher return than Treasury Bills because it involves relatively higher risk.

Example: Tata Steel requires funds to purchase raw materials before receiving payment from customers. Instead of taking a bank loan, the company issues Commercial Paper to investors for six months. Investors receive their investment back with a return when the Commercial Paper matures.

1.3.8.3 Certificate of Deposit (CD)

A Certificate of Deposit (CD) is a negotiable money market instrument issued by commercial banks and certain financial institutions to raise short-term funds. It is issued for a fixed period and offers a predetermined rate of return. Since Certificates of Deposit can be transferred to other investors before maturity, they provide greater flexibility. CDs are considered a safe investment because they are issued by regulated banks.

Example: A commercial bank issues a six-month Certificate of Deposit worth ₹10 lakh to an institutional investor at an agreed interest rate. After six months, the investor receives the principal amount along with the interest earned.

1.3.8.4 Call Money

Call Money refers to very short-term borrowing and lending of funds between banks and financial institutions, usually for one day. Banks use call money to maintain the minimum cash balance required by the Reserve Bank of India (RBI) or to meet temporary shortages of funds. Because the borrowing period is extremely short, the interest rate on call money changes frequently depending on the demand and supply of funds in the market.

Example: At the end of a business day, Bank A finds that it is short of cash to meet RBI reserve requirements. It borrows ₹50 crore overnight from Bank B through the call money market. The next day, Bank A repays the borrowed amount along with one day's interest.

1.3.9 Capital Market Instruments

Capital market instruments are long-term financial securities used by companies and governments to raise funds for business expansion, infrastructure development, and other long-term projects. Unlike money market instruments, which have a maturity period of up to one year, capital market instruments generally have a maturity period of more than one year. They provide investors with an opportunity to earn returns through dividends, interest, or capital appreciation while helping organisations raise long-term finance. The three major categories of capital market instruments are equity instruments, debt instruments, and hybrid instruments.

1.3.9.1 Equity Instruments

Equity instruments represent ownership in a company. When an investor purchases equity shares, they become a part-owner or shareholder of the company. The investor's return depends on the company's performance and the movement in its share price.



Therefore, equity investments offer the possibility of high returns but also involve higher risk. The main characteristics of equity instruments are as follows:

- ◇ **Ownership Rights:** Equity shareholders become the owners of the company in proportion to the number of shares they hold. For example, when Anil purchases shares of Infosys through the stock exchange, he becomes one of its shareholders and owns a small portion of the company.
- ◇ **Voting Rights:** Equity shareholders have the right to vote on important matters such as the appointment of directors, mergers, and major business decisions during the company's annual general meeting. This allows shareholders to participate in corporate governance.
- ◇ **Dividend Income:** Companies may distribute a part of their profits to shareholders in the form of dividends. However, dividends are not guaranteed and depend on the company's profitability. For instance, if Infosys earns higher profits during the year, it may declare a dividend for its shareholders.
- ◇ **Capital Appreciation:** The value of equity shares may increase over time if the company performs well. Suppose Anil purchases an Infosys share for ₹1,500, and after three years its market price rises to ₹2,200. If he sells the share, he earns a capital gain of ₹700 in addition to any dividend received.
- ◇ **High Risk and High Return:** Since share prices fluctuate with market conditions, equity investments involve higher risk. However, they also provide the opportunity to earn higher long-term returns compared with many other investment options.

Thus, equity instruments are suitable for investors who are willing to take higher risk in exchange for the possibility of greater wealth creation over the long term.

1.3.9.2 Debt Instruments

Debt instruments represent borrowed funds. When investors purchase debt instruments, they lend money to the issuer, who agrees to repay the principal amount on maturity along with a fixed rate of interest. Debt instruments are generally considered safer than equity because the returns are predetermined and less affected by market fluctuations. Common debt instruments include corporate bonds, government bonds, debentures, and municipal bonds. The major characteristics of debt instruments are explained below.

- ◇ **Fixed Income:** Investors receive interest at a predetermined rate irrespective of the issuer's profits. For example, if Priya invests ₹1,00,000 in a Government Bond carrying 7% annual interest, she receives ₹7,000 every year until the bond matures.
- ◇ **Lower Risk:** Debt investments usually involve lower risk because the issuer has a legal obligation to pay interest and repay the principal amount. Government bonds are considered among the safest investments because they are backed by the Government.

- ◇ **Fixed Maturity:** Every debt instrument has a specified maturity period. For example, if Priya purchases a 10-year Government Bond, she receives regular interest during the ten years and gets back her original investment at the end of the maturity period.
- ◇ **Priority during Liquidation:** If a company is wound up, debt holders are paid before equity shareholders. This provides greater protection to investors compared with equity investments.

Therefore, debt instruments are appropriate for investors seeking regular income, lower risk, and capital protection.

1.3.9.3 Hybrid Instruments

Hybrid instruments combine the features of both equity and debt instruments. They provide investors with the advantages of fixed income as well as the opportunity to participate in the company's future growth. Hybrid instruments are designed to balance risk and return. Common hybrid instruments include preference shares, convertible debentures, and hybrid mutual funds. The important characteristics of hybrid instruments are as follows.

Balanced Risk: Hybrid instruments generally involve less risk than equity shares but more risk than pure debt instruments. They provide a balanced investment option for investors who prefer moderate risk.

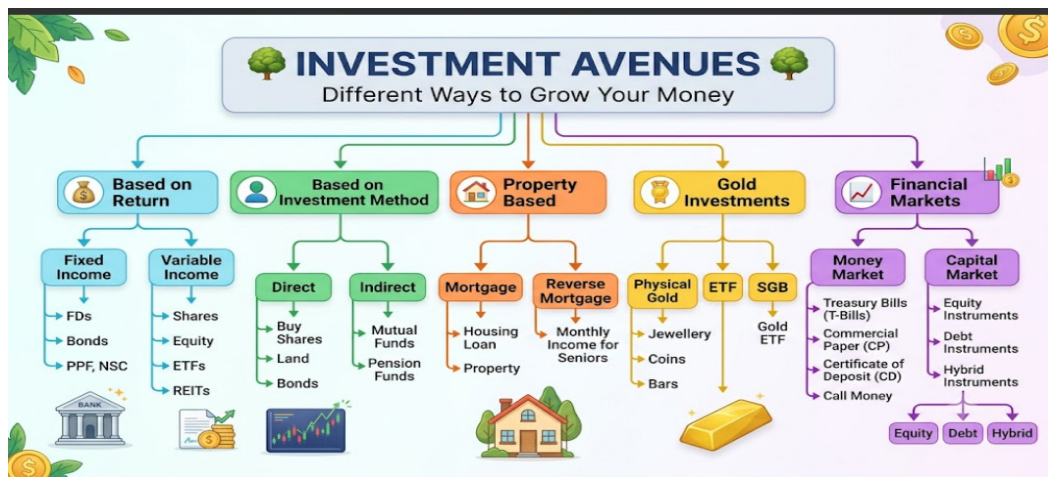
Combination of Fixed and Variable Returns: Hybrid instruments offer both fixed and market-linked returns. For example, a convertible debenture pays a fixed rate of interest for a few years. Later, it can be converted into equity shares of the company, allowing the investor to benefit if the company's share price increases. Similarly, preference shares provide fixed dividends like debt instruments but also represent ownership in the company. Hybrid mutual funds invest part of their funds in equity shares and the remaining portion in debt securities, thereby providing both income stability and growth potential.

Diversification Benefits: Since hybrid instruments combine different types of investments, they help reduce overall investment risk. For example, an investor who purchases units of a hybrid mutual fund benefits from the stability of debt investments while also participating in the growth of equity investments.

Hybrid instruments are therefore suitable for investors seeking a balance between safety, regular income, and long-term capital appreciation.



Figure 1.3.1 Investment Avenues



Ravi had ₹5,00,000 to invest but was confused about where to put his money. His teacher advised him not to invest everything in one place. Ravi invested some money in government bonds for regular income, some in shares for long-term growth, some in a hybrid mutual fund to balance risk and return, and a small amount in gold to protect his wealth. He also learned that money market instruments are suitable for short-term needs, while capital market instruments are better for long-term wealth creation. By choosing different investment avenues according to his financial goals, risk tolerance, and investment period, Ravi built a balanced investment portfolio. He realised that successful investing is not about choosing a single investment, but about selecting the right combination of investment avenues to achieve financial security and long-term wealth creation.

Recap

- ◇ Investment avenues are different options available for investing money to earn income, preserve capital and create long-term wealth.
- ◇ Security investments are financial assets such as shares, bonds, debentures, mutual funds and ETFs that are generally traded in organised financial markets.
- ◇ Non-security investments are physical assets such as land, buildings, gold and artwork that usually have lower liquidity but may provide long-term appreciation.
- ◇ Fixed income investments provide predetermined and stable returns, making them suitable for conservative investors seeking regular income and capital protection.
- ◇ Variable income investments provide returns based on market performance and business growth, offering higher return potential along with higher risk.

- ◇ Direct investment involves purchasing investment assets directly, giving investors greater control along with greater responsibility.
- ◇ Indirect investment involves investing through professional intermediaries such as mutual funds and pension funds, making it suitable for investors with limited investment knowledge.
- ◇ A mortgage enables individuals to borrow money by pledging immovable property as collateral while retaining ownership after loan repayment.
- ◇ A reverse mortgage allows senior citizens to receive regular income from their residential property without selling it or making monthly repayments during their lifetime.
- ◇ Real estate investment offers opportunities for rental income and capital appreciation but requires substantial capital and has relatively low liquidity.
- ◇ Physical gold is a traditional investment that provides emotional value and inflation protection but involves storage costs and purity concerns.
- ◇ Gold ETFs provide exposure to gold through the stock market without physical storage, offering convenience and high liquidity.
- ◇ Sovereign Gold Bonds (SGBs) combine government security, periodic interest income and gold price appreciation, although they involve a lock-in period.
- ◇ Money market instruments are short-term, low-risk investments that provide high liquidity and are mainly used for short-term financing and cash management.
- ◇ The major money market instruments include Treasury Bills, Commercial Paper, Certificates of Deposit and Call Money.
- ◇ Capital market instruments are long-term investment securities used for wealth creation and business financing.
- ◇ Equity instruments represent ownership in a company and offer voting rights, dividends and capital appreciation with relatively higher risk.
- ◇ Debt instruments provide fixed interest income and lower risk while giving investors priority during liquidation.
- ◇ Hybrid instruments combine the features of equity and debt, providing balanced risk and return.

Objective Questions

1. Which investment provides predetermined returns?
2. Which investment represents ownership in a company?
3. Which investment is designed mainly for senior citizens to receive regular income from their residential house?
4. Which gold investment requires a Demat account?
5. Which market deals with short-term financial instruments?
6. Which market deals with long-term financial securities?
7. Which money market instrument is issued by the Government of India?
8. Which instrument combines the features of equity and debt?
9. Which type of investment is managed by professional fund managers?
10. Which asset is pledged as collateral in a mortgage?

Answers

1. Fixed-income
2. Equity
3. Reverse mortgage
4. Gold ETF
5. Money market
6. Capital market
7. Treasury Bill
8. Hybrid
9. Indirect
10. Property

Self-Assessment Questions

1. Explain the different investment avenues.
2. Difference between direct and indirect investments
3. Discuss different gold-based investment avenues.
4. List out any 3 money market instruments
5. Discuss capital market instruments

Assignments

1. A salaried employee with ₹20 lakh to invest wants to achieve regular income, capital growth, tax savings and financial security over the next 15 years; evaluate the suitability of different investment avenues and recommend the most appropriate investment portfolio with reasons.
2. A retired person has received a retirement benefit of ₹60 lakh and is worried about inflation, market risk and medical expenses; analyse the available security and non-security investment avenues and suggest the best investment plan with proper justification.
3. A young entrepreneur plans to invest business profits in real estate, gold, equity shares, debt instruments and money market securities; critically compare these investment avenues and recommend the most suitable investment strategy based on risk, return, liquidity and safety.
4. A family intends to purchase a house by choosing between a traditional mortgage and a reverse mortgage while also investing in Sovereign Gold Bonds, Gold ETFs and mutual funds; evaluate the advantages, limitations and long-term financial implications of each investment decision.
5. An investor expects economic uncertainty and fluctuating stock market conditions over the next five years; design an investment portfolio by selecting appropriate direct and indirect investment avenues, fixed-income and variable-income securities, and justify your recommendations based on risk, return, liquidity and investment objectives.

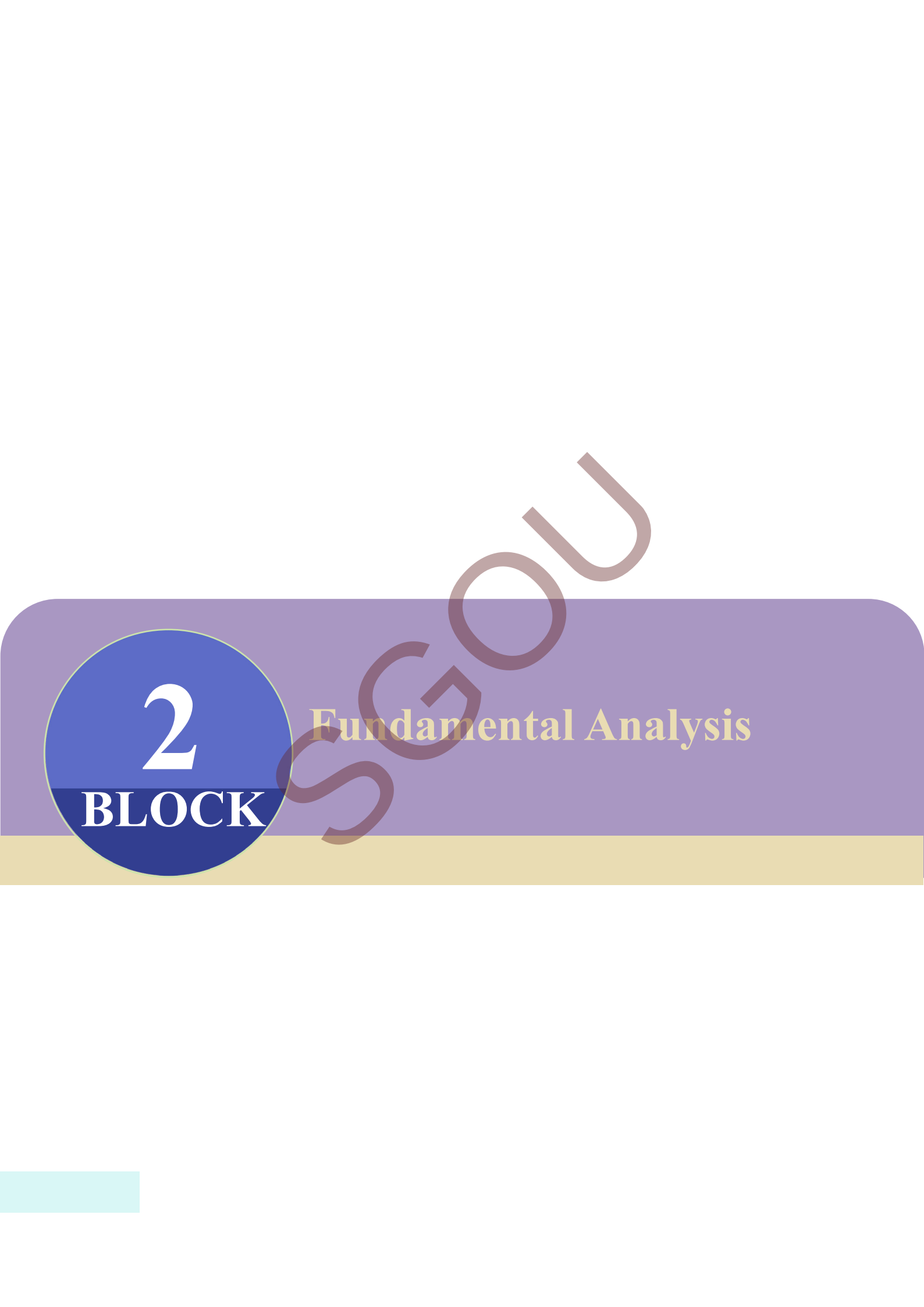


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2 BLOCK

Fundamental Analysis

Unit 1

Economy Analysis

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ Gain knowledge about economy analysis;
- ◇ Describe the E I C Framework;
- ◇ Explain Macroeconomic activities under economy analysis;
- ◇ Discuss the role of the securities market under economy analysis;
- ◇ Get an overview of cyclical indicator approach under economy analysis;
- ◇ Comprehend the monetary variables under economy analysis.

Prerequisite

For many people, the stock market appears to move only because of company profits and economic growth. On the other hand, investor sentiment and economic expectations can also influence share prices. A famous incident occurred during the Euro 2020 football tournament when football star Cristiano Ronaldo removed two Coca-Cola bottles from a press conference table and encouraged people to drink water instead. Soon after, Coca-Cola's share price fell, and its market value declined by about \$4 billion. Although many factors affect stock prices, the incident showed how public perception, consumer behaviour, and investor expectations can influence the market. Such events highlight why investors and analysts study economic conditions, business trends, and market sentiment through economic analysis before making investment decisions.

Keywords

EIC framework, Macroeconomic activities, Security markets, cyclical indicator approach, Monetary variables, economic forecasting

Discussion

2.1.1 Fundamental analysis

Fundamental analysis is a logical and systematic method used to estimate the future value of a security which an investor wants to buy. The objective of fundamental analysis is to raise the intrinsic value of security. It is based on the belief that the market price of a share is influenced by several basic factors related to the economy, industry, and company. The purpose of this analysis is to identify whether a share is fairly priced, underpriced, or overpriced in the market. In simple terms, it helps investors understand whether a company is financially strong, capable of earning profits in the future, and able to provide regular returns to shareholders. For example, if the market price of a share is lower than its actual worth, investors may buy it because they expect the price to rise in future. On the other hand, if the market price is much higher than its real value, investors may avoid buying or may even sell the share.

Every share is believed to have a real or true worth known as its intrinsic value or fundamental value. This Stock value is determined based on the present and future earning capacity of the company. Fundamental analysis helps investors estimate this intrinsic value by studying economic conditions, industry performance, and company fundamentals. Suppose the intrinsic value of a share of Tata Motors is estimated at ₹900 while its market price is only ₹750. In such a situation, the share is considered underpriced, and investors may buy it expecting the price to increase in future. Similarly, if the market price is ₹1,100 while the intrinsic value is ₹900, the share may be considered overpriced, and investors may decide to sell it. Thus, fundamental analysis supports rational and informed investment decisions instead of decisions based on rumours or market gossip. Stock valuation analysis helps investors understand whether a share is worth buying. Before investing in shares, investors study different factors that can affect the future performance and profitability of a company.

Stock valuation analysis is mainly divided into three parts:

1. Economy analysis (macroeconomic analysis)
2. Industry Analysis
3. Company Analysis

Fundamental analysis follows a three-level framework known as the Economy–Industry–Company (EIC) framework. This approach explains that a company's performance depends on three important layers: the overall economy, the industry in which the company operates, and the company itself. A company may perform well only



when the economy and the industry also support growth. For example, Maruti Suzuki can achieve better sales when the Indian economy is growing, people's incomes are increasing, and demand for vehicles is rising. If the automobile industry is expanding and the company also has good management and quality products, its performance may become even stronger. Therefore, investors study all three aspects together before investing in shares.

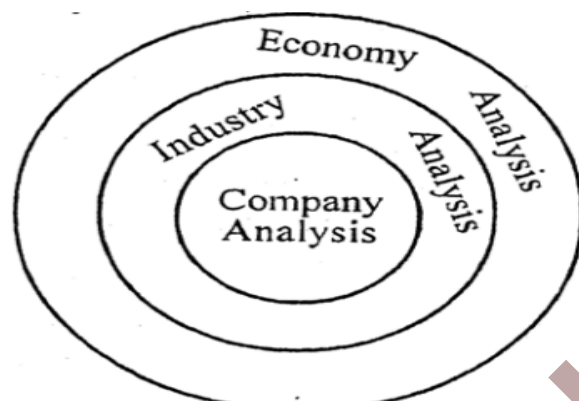


Figure 2.1.1 Framework EIC Analysis

The factors affecting company performance can be broadly divided into economy-wide factors, industry-wide factors, and company-specific factors. Economy-wide factors include economic growth, inflation, interest rates, exchange rates, and government policies. These factors affect almost all industries and companies in the country. For example, low interest rates encourage people to borrow money for houses and vehicles, thereby benefiting industries such as banking and automobiles. Industry-wide factors affect only companies belonging to a particular industry. These include demand and supply conditions, technological changes, competition, and government regulations. For instance, the growing popularity of electric vehicles has changed the automobile industry significantly. Company-specific factors are unique to individual companies and include management quality, product reputation, labour relations, and innovation. A company such as Apple enjoys strong customer loyalty because of its brand image and product quality, which helps it perform better than many competitors. Economy-related factors are discussed in this unit.

2.1.2 Economy analysis

Economy analysis is the first and most important step in fundamental analysis because the performance of businesses depends greatly on the condition of the economy. When the economy is growing, employment opportunities increase, incomes rise, and consumer demand becomes stronger. As a result, companies usually earn higher profits. During a recession, however, demand falls, production declines, and company profits may reduce. Investors therefore closely study economic variables that influence business performance and future earnings. Hence, the investor needs to assess the state of the economy and its impact on the stock market.

One important economic variable is the growth rate of the economy, generally measured through Gross Domestic Product (GDP). A high GDP growth rate indicates rising production, increasing income, and expanding business opportunities. Inflation is another important factor. Moderate inflation may support economic growth, but high inflation increases production costs and reduces purchasing power. Interest rates also play a major role in investment decisions. Lower interest rates encourage borrowing and spending, while higher interest rates may reduce business expansion and consumer demand. Foreign exchange rates are particularly important for export and import companies. For example, when the Indian rupee weakens against the US dollar, export-oriented companies such as Infosys may benefit because they earn revenue in foreign currencies. Government policies related to taxation, trade, subsidies, and industrial development also influence business growth and profitability.

Economic analysis is the study of the overall economic environment to understand how it affects industries, companies, and the stock market. The performance of companies is closely linked with the condition of the economy. When the economy grows, businesses usually earn more profit and share prices may rise. When the economy slows down, company profits and stock prices may also decline.

To understand the effect of the economy on investment, economy analysis is generally classified into the following areas:

1. Macro-Economic Activities
2. Security Markets
3. Cyclical Indicators Approach
4. Monetary Variables

2.1.2.1 Macro-economic Activities

Macro-economic activities refer to the major economic factors that influence the entire economy as well as the stock market. These factors affect production, employment, income, company profits, and investment decisions. Investors carefully study these factors because changes in the economy directly influence business growth and share prices.

Important macroeconomic factors include:

- ◇ Gross Domestic Product (GDP)
- ◇ Inflation
- ◇ Interest rates
- ◇ Savings and investment
- ◇ Fiscal policy
- ◇ Tax structure
- ◇ Balance of payments
- ◇ Foreign Direct Investment (FDI)
- ◇ Foreign Institutional Investment (FII)



- ◇ Infrastructure development
- ◇ Agricultural performance
- ◇ Employment level
- ◇ Population and demographic trends

These factors help investors understand whether the economy is improving or slowing down.

Gross Domestic Product, commonly known as GDP, is the total monetary value of all goods and services produced within a country during a specific period, usually one year. It is one of the most important measures used to understand the strength and growth of an economy. Economists, governments, businesses, and investors carefully study GDP because it gives a clear picture of a country's overall economic condition. GDP includes the value of goods such as food items, clothes, vehicles, machines, mobile phones, and construction materials, as well as services such as banking, education, healthcare, transport, tourism, and communication services. In simple words, GDP measures the total economic activity taking place within the country. When GDP increases, it usually means that businesses are producing more goods and services, people are earning more income, and economic activity is improving. A rising GDP generally shows economic progress and development. On the other hand, when GDP growth slows or turns negative, it may indicate economic weakness, lower business activity, and reduced employment opportunities. For investors, GDP is very important because the performance of industries and companies is closely connected with economic growth. A healthy GDP growth rate often creates a favourable environment for businesses, while weak GDP growth may create difficulties for companies.

The basic formula for GDP is:

$$\text{GDP} = \text{Consumption} + \text{Investment} + \text{Exports} - \text{Imports}$$

Explanation of each component of the formula is as follows:

i. Consumption

Consumption refers to spending by individuals and households on goods and services. It is usually the largest part of GDP in many countries.

People spend money on:

- ◇ Food and groceries
- ◇ Clothing
- ◇ Mobile phones and electronics
- ◇ Education
- ◇ Healthcare
- ◇ Transportation
- ◇ Entertainment
- ◇ Household products

When people have stable jobs and higher income, they usually spend more money. Increased spending creates higher demand for goods and services, which encourages companies to increase production. Suppose many families purchase new televisions, refrigerators, and washing machines during festival seasons. Electronics companies may receive more orders and increase production. Retail stores may also earn higher sales. This increased economic activity contributes to GDP growth. Another example can be seen in the restaurant and tourism sector. When people travel more and spend money on hotels, restaurants, and transport services, economic activity increases and GDP improves.

ii. Investment

Investment refers to expenditure on capital goods that help in future production activities. In GDP accounting, investment does not simply mean the purchase of shares or financial assets by individuals. Instead, it mainly includes spending by businesses and firms on productive assets. Investment includes the construction of factories, offices, roads, warehouses, and other infrastructure facilities. It also covers the purchase of machinery, equipment, and vehicles used for production, as well as increases in inventories of unsold stock held by firms. For example, if a manufacturing company purchases new machines to increase its production capacity, the expenditure is treated as investment. When a farmer buys a tractor or irrigation equipment, it contributes to investment expenditure.

Investment is important because it expands the productive capacity of the economy. It promotes industrial growth, improves productivity, encourages technological advancement, and creates employment opportunities. A higher level of investment generally indicates future economic expansion.

iii. Exports

Exports refer to goods and services produced within a country and sold to foreign countries. Exports bring income from abroad into the domestic economy and contribute positively to GDP. Countries export a wide variety of products and services depending on their resources and industrial capabilities. In the case of India, important exports include software services, pharmaceuticals, textiles, tea, spices, engineering goods, and automobiles. For example, when Indian software companies provide services to clients in other countries, or when Indian industries sell medicines abroad, the value of such sales is included in exports.

iv. Imports

Imports refer to goods and services purchased from foreign countries. These goods are produced outside the domestic economy. Therefore, their value is deducted while calculating GDP. Imports may include crude oil, gold, machinery, electronic goods, foreign technology, and various consumer products purchased from abroad. For example, when India imports petroleum products or electronic equipment from another country, the expenditure on such goods is treated as imports. Imports are subtracted from GDP because consumption and investment expenditure may include spending on foreign-produced goods. If imports are not deducted, foreign production would incorrectly be counted as part of domestic production.



Although imports are deducted in GDP calculation, they are still important for the economy. Imports provide goods and raw materials that may not be available domestically and support industrial production and technological development.

Another macroeconomic factor we consider for economic analysis is **inflation**. It refers to the continuous rise in the general price level of goods and services in the economy. It is one of the most important macroeconomic indicators studied in economic analysis. Moderate inflation is generally considered favourable because it indicates growing demand and economic activity. However, high inflation increases the cost of raw materials, wages, transport, and production. As a result, company profits may decline. Inflation also reduces the purchasing power of consumers. People may reduce spending on non-essential products, which can affect company sales and earnings. For example, during periods of high inflation, industries such as automobiles, real estate, and consumer goods may experience slower growth because consumers become more cautious in spending. Thus, inflation influences business costs, consumer demand, profitability, and stock market performance.

In economic analysis, investors examine **interest rates** to understand the borrowing and spending conditions in the economy. An interest rate is the rate of interest charged by banks for deposits and lending. This is set by the RBI through its monetary policy. When interest rates rise, loans become more expensive for businesses and consumers. Companies may reduce expansion plans, while consumers may cut down spending on houses, vehicles, and other costly products. This can reduce company sales and profits, leading to lower stock prices. When interest rates fall, borrowing becomes cheaper and economic activity usually increases. Businesses may invest more, consumers may spend more, and company earnings may improve. Therefore, lower interest rates are often associated with favourable stock market conditions.

Savings and investment are studied to evaluate the future growth potential of the economy. High savings increase the availability of funds in banks and financial institutions, making it easier for businesses to obtain loans for expansion. Increased investment in industries, factories, machinery, and infrastructure generally indicates future economic growth. Investors interpret rising investment levels as a positive sign because they may lead to higher production, increased employment, and better company profits. As a result, stock prices may improve. Weak investment activity, however, may indicate slowing economic growth and weaker market conditions.

Fiscal policy means the government plan for public expenditure. It is examined to understand how government spending and taxation may influence economic activity. When the government increases spending on infrastructure, education, healthcare, or development projects, economic growth may improve. Companies connected with these sectors may receive more business opportunities and higher profits. Tax reductions may also increase consumer spending and business earnings, supporting stock market growth. But excessive government spending may create inflation or increase public debt, which can negatively affect investor confidence and stock prices. Therefore, fiscal policy helps investors assess the future direction of the economy and the stock market.

In economic analysis, investors study the **tax structure** to understand how taxation may affect business profits and consumer demand. Lower corporate taxes usually allow companies to retain more profit, which may improve earnings and increase stock prices. Reduced personal taxes may increase disposable income and encourage higher consumer spending, benefiting many industries. On the other hand, higher taxes may reduce business profitability and lower consumer demand. Investors therefore analyse tax changes carefully because they directly influence company performance and market sentiment.

Balance of Payments is studied to understand a country's financial position in relation to other countries. A strong Balance of Payments, supported by higher exports and foreign inflows, generally indicates economic stability and healthy foreign exchange reserves. This improves investor confidence and may support stock market growth. However, a large deficit may weaken the domestic currency and create economic uncertainty. Investors may then expect slower economic growth and weaker company performance, which can negatively affect stock prices.

Investors study **Foreign Direct Investment (FDI)** to understand the level of foreign confidence in the economy. Rising FDI usually indicates that foreign companies believe the country offers good business opportunities and future growth. Increased FDI brings capital, technology, and employment opportunities, which support industrial growth and improve economic activity. Investors often consider higher FDI as a positive sign for company earnings and stock market performance. A decline in FDI may suggest weaker economic confidence and slower business growth.

Foreign Institutional Investment (FII) movements are closely monitored because they directly influence stock market trends. When foreign institutional investors purchase large quantities of shares, stock prices often rise due to increased demand in the market. Strong FII inflows are usually viewed as a sign of global confidence in the economy. However, when FIIs withdraw their investments, selling pressure increases and stock prices may fall sharply. Therefore, investors use FII data to understand market sentiment and future market direction.

Infrastructure development is studied to evaluate the efficiency and growth potential of the economy. Good roads, ports, railways, electricity supply, and communication systems improve business operations and reduce transportation and production costs. Better infrastructure supports industrial growth, increases productivity, and attracts investment. Investors therefore expect companies to perform better in economies with strong infrastructure development, which may positively influence stock prices.

Employment levels are studied to understand the strength of economic activity and consumer demand. Higher employment means more people are earning income and spending money on goods and services. Increased consumer spending generally improves company sales and profits, which may support higher stock prices. Rising unemployment, however, may reduce purchasing power and weaken demand in the economy. Investors may then expect lower business earnings and weaker stock market conditions.



Population and demographic trends are examined to identify future demand and long-term business opportunities. A growing and young population may increase demand for housing, education, healthcare, technology, and consumer products. Rising urbanisation and income levels may further support industrial growth and business expansion. Investors use demographic trends to identify sectors likely to experience future growth, which may positively influence stock valuation over the long term.

The next area under economic analysis is the security market. Investors analyse the security market factors to make their investment decisions. The security market factors are discussed in detail below.

2.1.2.2 Security market

A security market is a market where financial securities such as shares, bonds, and debentures are bought and sold. In India, the two major stock exchanges are the Bombay Stock Exchange and the National Stock Exchange. These markets are very important because they reflect investor confidence and the condition of the economy. When the Indian economy performs well, companies usually earn more profit. Investors then become confident and start purchasing more shares. This increases share prices. But when the economy faces problems such as inflation, unemployment, floods, pandemics, or political uncertainty, investors become worried and may start selling shares. As a result, stock prices fall. Thus, movements in the stock market help economists and investors understand whether the economy is improving or weakening. The factors or variables under security market are discussed below:

i. Share Price Movements

Share price movement shows whether investors believe companies will perform well in the future. During the COVID-19 period in 2020, the Indian stock market slowed down because people feared business losses and economic failure. Shares of tourism, aviation, hotel, and retail companies declined heavily. But later, when businesses reopened and the economy started recovering, the market rose again. In Kerala also, many investors noticed that companies connected with healthcare, online services, and information technology performed better during that period. Similarly, when the government announces large infrastructure projects like road construction, railway development, or Digital India programmes, shares of cement, steel, and construction companies often rise because investors expect higher future profits. So the share price movements are also considered under economy analysis in the following way:

- ◇ Rising share prices show economic confidence.
- ◇ Falling share prices may indicate slowdown or uncertainty.
- ◇ It helps analysts understand future business expectations.

ii. Trading Volume

Trading volume means the number of shares bought and sold in the market. If a large number of investors are buying shares, trading volume increases. This usually shows strong interest and confidence in the market. During the listing of Indian companies like Zomato and LIC, trading activity became very high because many investors wanted to

participate. In Kerala, many small investors nowadays actively use online trading apps to invest in Indian shares. During periods of strong market growth, trading activity from retail investors also increases. Trading volume affects economy analysis in the following way:

- ◇ High trading volume shows active investment activity.
- ◇ It reflects public confidence in the economy.
- ◇ It helps identify strong or weak market trends.

iii. Investor Confidence

Investor confidence means the level of trust investors have in the future economy and business conditions. When the Indian government reduced corporate taxes in 2019, the stock market reacted positively because investors expected companies to earn higher profits. In the same way, when inflation rises sharply, or fuel prices increase continuously, investors may become worried about future economic growth. This can reduce confidence and weaken the stock market. In Kerala, heavy floods in 2018 affected tourism, trade, and transport activities temporarily. During such situations, investors often become cautious about sectors directly affected by the disaster. Investor confidence affects economy analysis in the following way :

- ◇ High confidence shows positive economic expectations.
- ◇ Low confidence may indicate fear of slowdown.
- ◇ It helps understand future investment and business activities.

iv. Bull Market

A bull market is a condition where share prices rise continuously because investors believe the economy will grow strongly. For example, after the COVID recovery period, Indian markets entered a strong bullish phase. Investors believed that businesses would recover, consumer spending would increase, and company profits would improve. As a result, the NIFTY 50 and BSE Sensex reached new highs.

During this period:

- ◇ IT companies gained because digital services expanded.
- ◇ Banking shares improved because loan demand increased.
- ◇ Automobile shares rose due to higher vehicle sales.

Suppose investors believe that tourism in Kerala will improve during the next holiday season. They may start purchasing shares of hotel or travel-related companies. As demand for those shares increases, prices rise continuously, creating a bullish market trend.

- ◇ A bull market generally indicates:
- ◇ Strong economic growth
- ◇ Better company profits
- ◇ Positive investor sentiment
- ◇ Expanding business activities



v. Bear Market

A bear market is a condition where share prices fall continuously because investors fear economic problems or lower profits. For example, during the first lockdown in India in 2020, markets fell sharply because factories closed, transport stopped, and business activities slowed down. Investors feared recession and sold shares heavily. Similarly, if crude oil prices rise sharply, Indian companies may face higher costs. Investors may worry that profits will decline, causing stock prices to fall.

If investors believe that inflation and high interest rates will reduce consumer spending, they may sell shares of automobile or real estate companies. Continuous selling creates a bearish market.

A bear market indicates:

- ◇ Economic uncertainty
- ◇ Fear among investors
- ◇ Weak business expectations
- ◇ Possibility of slower economic growth

The Indian stock market often reacts quickly to important economic events.

For example:

- ◇ Good monsoon seasons usually help agriculture and rural spending. This may improve shares of fertiliser, tractor, and consumer goods companies.
- ◇ RBI interest rate cuts often support banking and housing sectors.
- ◇ Rising gold prices sometimes indicate that investors are becoming cautious about the economy.
- ◇ Strong IT exports can improve technology sector shares.

Economy analysts study these market trends to understand:

- ◇ Future industrial growth
- ◇ Consumer confidence
- ◇ Business profitability
- ◇ Overall economic direction

Security markets are closely connected with the Indian economy. Changes in share prices, investor confidence, trading activity, and market trends help analysts understand whether the economy is growing or slowing down.

In India, stock markets react not only to national economic policies but also to real-life events such as floods, pandemics, fuel price increases, monsoon conditions, and global economic changes. Therefore, security markets act as an early indicator of economic conditions and help investors, businesses, and governments make better decisions.

2.1.2.3 Cyclical Indicators Approach

The cyclical indicators approach is used to understand how the economy moves through different stages of growth and decline. Economic activities do not grow continuously. Instead, they follow a cycle of expansion, peak, recession, and recovery. Economy analysts study these stages to understand the current condition of the economy and to predict future business and stock market trends. By identifying the stage of the business cycle, investors, companies, and policymakers can make better decisions regarding investment, production, employment, and economic policies. Economy passes through different cycles; they are as follows:

i. Expansion Phase

The expansion phase is a period when economic activity increases steadily. During this stage, businesses produce more goods and services because consumer demand is rising. Employment opportunities increase, incomes improve, and company profits grow. Economic analysts identify expansion by observing rising industrial production, increasing sales, higher employment levels, and growing investment. Stock markets often perform well during this period because investors expect companies to earn higher profits in the future. A good example is the period after the COVID-19 lockdowns were lifted in India during 2021 and 2022. Economic activities resumed, consumer spending increased, businesses reopened, and many sectors such as banking, automobiles, and manufacturing experienced growth. The stock market also showed strong performance as investors expected economic recovery and business expansion.

ii. Peak Phase

The peak phase represents the highest point of economic growth before the economy starts slowing down. At this stage, production, employment, income, and business profits are generally at their maximum levels. However, demand often becomes so strong that prices begin to rise rapidly, creating inflationary pressure. Economy analysts monitor inflation rates, wage growth, and borrowing levels to identify whether the economy is approaching a peak. During the years before the Global Financial Crisis of 2008, Many economies experienced strong growth, rising property prices, and high levels of business activity. But excessive borrowing and rising financial risks eventually led to economic difficulties. Analysts who observed these warning signs recognised that economic growth had reached an unsustainable level.

iii. Recession Phase

The recession phase occurs when economic activity begins to decline. Consumer spending slows, business sales fall, company profits decrease, and unemployment may rise. Economy analysts identify recession through declining production, lower investment, weaker consumer confidence, and falling business earnings. During this period, stock markets often react negatively because investors become concerned about future economic performance. A recent example occurred during the COVID-19 pandemic in 2020. Lockdowns and travel restrictions caused many businesses to close temporarily. Production and consumer spending fell sharply, and several industries such as tourism, aviation, and hospitality faced serious challenges. Economy analysts closely monitored these developments to assess the extent of the economic slowdown.



iv. Recovery Phase

The recovery phase begins when economic conditions start improving after a recession. Production increases gradually, businesses begin hiring workers again, and consumer confidence returns. Economy analysts look for signs such as rising industrial output, increasing investment, improving employment figures, and growing consumer spending to confirm recovery. Stock markets often recover before the overall economy because investors expect future improvements in business performance. A good example is India's economic recovery after the pandemic. Government support measures, vaccination programmes, and the reopening of businesses helped economic activities improve. Many industries started expanding again, and investor confidence gradually returned to the market.

Economy analysts use various indicators to identify the stage of the business cycle. These indicators are generally classified as leading indicators, coincident indicators, and lagging indicators. Each type provides different information about the economy and helps analysts understand both current and future economic conditions. The different types of economic Indicators are discussed below:

v. Leading Indicators

Leading indicators are economic variables that change before the overall economy changes. They help analysts predict future economic movements and provide early warning signals about economic growth or slowdown. When leading indicators show improvement, analysts often expect stronger economic activity in the coming months. When stock market indices begin rising consistently, and businesses start placing more orders for machinery and raw materials, analysts interpret these signals as signs of future economic growth. Similarly, an increase in building permits suggests that construction activity may rise in the future, creating jobs and stimulating economic activity.

A. Coincident Indicators

Coincident indicators move at the same time as the economy. They help analysts assess the current condition of the economy rather than predicting the future. These indicators provide a real-time picture of economic performance. Analysts monitor industrial production, employment levels, and personal income to determine whether the economy is currently expanding or slowing down. If factories are producing more goods, more people are employed, and incomes are increasing, analysts conclude that the economy is performing well at that particular time.

B. Lagging Indicators

Lagging indicators change only after the economy has already moved into a new phase. They are useful for confirming trends that have already occurred rather than predicting future changes. Economy analysts use lagging indicators to verify whether economic growth or recession has become firmly established. Unemployment rates often continue rising even after a recession has started. In the same way, companies may increase borrowing only after business conditions have improved. Therefore, analysts use these indicators as confirmation that economic changes have already taken place.

In economy analysis, the cyclical indicators approach helps analysts understand where the economy stands in the business cycle and where it is likely to move next. Leading indicators provide early signals of future changes, coincident indicators show the present economic situation, and lagging indicators confirm past developments. By carefully studying these indicators, analysts can evaluate economic conditions, predict market trends, and make informed decisions regarding investment and business activities.

2.1.2.4 Monetary Variables

Monetary variables are factors related to money, banking, credit, and financial activities in an economy. They play an important role in economic analysis because they influence business investment, consumer spending, employment, production, and stock market performance. Economy analysts study these variables to understand whether the economy is likely to grow, slow down, or face inflationary pressures. In India, the monetary policy decisions of the Reserve Bank of India are closely monitored because they affect the flow of money and credit throughout the economy.

i. Interest Rates

An interest rate is the cost of borrowing money. It is one of the most important indicators used in economy analysis because it directly affects the decisions of businesses and consumers. When interest rates are low, businesses can borrow funds at a lower cost to expand production, open new branches, or invest in new technology. Consumers may also be more willing to purchase houses, vehicles, and other goods using loans. This usually leads to higher economic activity. Economy analysts examine changes in interest rates to understand how they may affect future growth. Lower interest rates generally encourage investment and spending, while higher rates may reduce borrowing and slow economic activity.

ii. Money Supply

Money supply refers to the total amount of money available in the economy. Economy analysts monitor money supply because it influences spending and investment levels. When more money is available through banks and financial institutions, businesses can obtain funds for expansion, and consumers can spend more on goods and services. This often supports economic growth. Analysts also watch whether the money supply is growing too quickly. If the amount of money increases faster than the production of goods and services, inflation may rise. An example can be seen during the rapid growth of digital payments and banking services in India. Easier access to banking and credit helped many small businesses expand their operations and reach more customers. Analysts considered this growth in financial activity as a factor supporting economic development and consumption.

iii. Inflation

Inflation refers to a continuous increase in the general prices of goods and services. It is a key variable in economy analysis because it affects purchasing power, business costs, and investment decisions. Moderate inflation is often associated with healthy economic growth. A very high inflation rate can reduce consumer spending and increase production costs for businesses. Economy analysts study inflation trends to determine

whether the economy is stable or facing price pressures. Rising inflation may lead to changes in interest rates and government policies, which can influence future economic growth.

iv. Monetary Policy of the Central Bank

Monetary policy refers to the measures taken by the Reserve Bank of India to control money supply, credit, and interest rates. Economy analysts closely follow RBI policy decisions because they provide important information about the future direction of the economy. When the RBI adopts an expansionary monetary policy, it aims to encourage borrowing and investment by making credit more easily available. This can stimulate economic growth. On the other hand, when inflation becomes a concern, the RBI may adopt a tighter monetary policy to control excessive spending and price increases. For example, when inflationary pressures increased due to rising food and fuel prices, the RBI raised policy rates to contain inflation. Economy analysts used these policy changes to assess their likely impact on business investment, consumer spending, and stock market performance.

Monetary variables help analysts understand how money and credit influence economic activity. Interest rates indicate the cost of borrowing, money supply shows the availability of funds in the economy, inflation reflects changes in prices and purchasing power, and monetary policy guides overall financial conditions. By analysing these variables together, economists and investors can assess economic trends and make informed decisions about future business and investment opportunities.

Economy analysis is the first stage of fundamental analysis and starts with an analysis of historical performance of the economy. But as investment is a future-oriented activity, the investor is more interested in the expected future performance of the overall economy and its various segments. For this, forecasting the future direction of the economy becomes necessary.

2.1.3 ECONOMIC FORECASTING

Economic forecasting thus becomes a key activity in economy analysis. It may be carried out for short-term periods (up to three years), intermediate-term periods (three to five years) and long-term periods (more than five years). An investor is more concerned about short-term economic forecasts for periods ranging from a quarter to three years.

1. Anticipatory Surveys

Anticipatory surveys are surveys of the intentions of people in government, business, trade, and industry regarding their construction activities, plant and machinery expenditures, level of inventory, etc. Such surveys may also include the future plans of consumers about their spending on durables and non-durables. Based on the results of these surveys, the analyst can form his own forecast of the future state of the economy.

The greatest shortcoming of the anticipatory surveys is that there is no guarantee that the intentions surveyed will certainly materialise. The forecast based on anticipatory surveys or surveys of intentions will be valid only to the extent that the intentions are

translated into action. Hence, the analyst cannot rely solely on these surveys.

2. Barometric or Indicator Approach

In this approach to economic forecasting, various types of indicators are studied to find out how the economy is likely to perform in the future. These indicators are time-series data of certain economic variables. The indicators used in the barometric or indicator approach are classified into leading, coincidental and lagging indicators. (These we discussed in section 2.1.2.3) Leading indicators are those time series data that reach their high points (peaks) or low points (troughs) before the economy reaches its own peaks or troughs. Therefore, they provide advance signals about future economic activity. Coincidental indicators reach their peaks and troughs at approximately the same time as the economy. They reflect the current state of economic activity. Lagging indicators reach their turning points after the economy has already reached its own turning points. They help confirm economic trends that have already occurred.

In this method, the indicators act as barometers to indicate the future level of economic activity. Careful examination of historical economic data is necessary to identify which variables lead, lag, or move together with the economy. The US Department of Commerce, through its Bureau of Economic Analysis, has prepared a list of economic indicators used for forecasting purposes.

a, Leading Indicators

- ◇ Average weekly hours of manufacturing production workers
- ◇ Average weekly initial unemployment claims
- ◇ Contracts and orders for plant and machinery
- ◇ Number of new building permits issued
- ◇ Index of S&P 500 stock prices
- ◇ Money supply (M2)
- ◇ Change in sensitive materials prices
- ◇ Change in manufacturers' unfilled orders (durable goods industries)
- ◇ Index of consumer expectations

b. Coincidental Indicators

- ◇ Employees on non-agricultural payrolls
- ◇ Personal income less transfer payments
- ◇ Index of industrial production
- ◇ Manufacturing and trade sales

c. Lagging Indicators

- ◇ Average duration of unemployment
- ◇ Ratio of manufacturing and trade inventories to sales
- ◇ Average prime rate
- ◇ Commercial and industrial loans outstanding
- ◇ Change in consumer price index for services



Of the three types of indicators, leading indicators are more useful for economic forecasting because they measure something that foreshadows a change in economic activity. The indicator approach has its own limitations. It is useful in forecasting the direction of a change in aggregate economic activity, but it does not indicate the magnitude or duration of the change. Further, the leading indicators may give false signals. Moreover, different leading indicators may give conflicting signals. The indicator approach becomes useful for economic forecasting only if data collection and presentation are done quickly. Any delay in presentation of data defeats the purpose of the indicators.

3. Econometric Model Building

This is the most precise and scientific of the different forecasting techniques. This technique makes use of econometrics, which is a discipline that applies mathematical and statistical techniques to economic theory. In the economic field, we find complex interrelationships between the different economic variables. The precise relationships between the dependent and independent variables are specified in a formal mathematical manner in the form of equations. The system of equations is then solved to yield a forecast that is quite precise.

In applying this technique, the analyst is forced to define clearly and precisely the interrelationships between the economic variables. The accuracy of the forecast derived from this technique would depend on the validity of the assumptions made by the analyst regarding economic interrelationships and the quality of his input data. Econometric models used for economic forecasting are generally complex. Vast amounts of data are required to be collected and processed for the solution of the model. This may cause delay in making the results available. Undue delay may render the results obsolete for the purpose of forecasting.

4. Opportunistic Model Building

This is one of the most widely used forecasting techniques. It is also known as GNP model building or sectoral analysis. Initially, an analyst estimates total demand in the economy, and based on this, he estimates total income or GNP for the forecast period. This initial estimate takes into consideration the prevailing economic environment, such as existing tax rates, interest rates, the rate of inflation, and other economic and fiscal policies of the government. After this initial forecast is arrived at, the analyst now begins building up a forecast of the GNP figure by estimating the levels of various components of GNP. For this, he collects the figures of consumption expenditure, gross private domestic investment, government purchases of goods and services and net exports. He adds these figures together to arrive at the GNP forecast. The two GNP forecasts arrived at by two different methods will be compared and necessary adjustments will be made to bring the two forecasts into line with each other. The opportunistic model building approach makes use of other forecasting techniques to build up the various components. A vast amount of judgement and ingenuity is also applied to make the overall forecast reliable.

Economic forecasting is an extremely complex and difficult process. No method of forecasting is completely accurate. However, forecasting techniques provide useful guidance regarding the future direction of the economy and help investors make informed investment decisions.

Recap

- ◇ Fundamental analysis estimates the true value of a share to support investment decisions.
- ◇ The Economy–Industry–Company framework examines economic, industry and company factors affecting share performance.
- ◇ Economy analysis studies how overall economic conditions influence businesses and stock markets.
- ◇ Macroeconomic variables such as GDP, inflation and interest rates affect economic growth and company profitability.
- ◇ Security market analysis evaluates share prices, trading activity and investor sentiment.
- ◇ Bull and bear markets indicate periods of rising and falling market confidence, respectively.
- ◇ The cyclical indicators approach helps identify different stages of the business cycle.
- ◇ Leading, coincident and lagging indicators are used to assess future, present and past economic conditions.
- ◇ Monetary variables such as money supply, inflation and interest rates influence economic activity and investment.
- ◇ Economic forecasting predicts future economic trends using surveys, indicators and analytical models.

Objective Questions

1. What analysis estimates the true value of a share?
2. Which framework is used in fundamental analysis?
3. What is the first stage of fundamental analysis?
4. Which measure shows the total value of goods and services produced in a country?
5. What is the continuous rise in the general price level called?
6. Which market is used for buying and selling shares?



7. What market condition is characterised by continuously rising share prices?
8. What market condition is characterised by continuously falling share prices?
9. Which institution controls monetary policy in India?
10. What process predicts future economic conditions?

Answers

1. Fundamental
2. EIC
3. Economy
4. GDP
5. Inflation
6. Security
7. Bull
8. Bear
9. RBI
10. Forecasting

Self-Assessment Questions

1. Explain the economy analysis under fundamental analysis?
2. Discuss the major macroeconomic variables affecting the stock market and investment decisions.
3. Briefly explain the concept of Gross Domestic Product (GDP) and discuss its components and significance in economic analysis.
4. Examine the impact of inflation, interest rates and fiscal policy on business performance and stock prices.
5. Discuss the concept, importance and methods of economic forecasting under economy analysis

Assignments

1. Explain how fundamental analysis helps investors evaluate shares by analysing economic conditions, security markets and company performance.
2. Discuss the role of macroeconomic variables, security market indicators and monetary variables in investment decision-making.
3. Explain the importance of economy analysis in understanding stock market movements and business performance.
4. Discuss the business cycle, economic indicators and monetary policy in assessing future economic and investment opportunities.
5. Examine the significance of economic forecasting techniques in predicting economic trends and supporting investment decisions.

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Suggested Reading

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Unit 2

Industry Analysis

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ Understand the concept of Industry
- ◇ Gain knowledge about different kinds of industries
- ◇ Get an overview of the industry lifecycle
- ◇ Comprehend the other factors that affect industry analysis
- ◇ Explain the analytical tools under industrial analysis

Prerequisite

A famous lesson in investing comes from the dramatic rise of the smartphone industry. Around 2007, when Apple's iPhone changed the way people communicated, many companies connected with smartphones, mobile applications, semiconductors, and telecommunications experienced rapid growth. At the same time, several firms that depended heavily on traditional mobile phones struggled to survive. This shows that a company's success is often influenced not only by its own management and products but also by the industry in which it operates. An investor who had recognised the growth potential of the smartphone industry early would have identified many successful investment opportunities. Therefore, before analysing an individual company, it is important to understand the industry in which it operates. Industry analysis helps investors identify growing industries, understand industry-specific risks, and select companies that are likely to benefit from future developments. This makes industry analysis an essential step in the process of fundamental analysis.

Keywords

Industry, kinds of industry, SWOT analysis, Porter's five force model, Business Cycles, Industry cycle.

Discussion

Industry analysis is the process of examining the performance, growth potential, opportunities, and challenges of a particular industry before selecting individual companies for investment. This is important because the success of a company is often influenced by the overall condition of the industry in which it operates. For example, before investing in Infosys, an investor should first analyse the Indian Information Technology (IT) industry. The growth of the IT industry is driven by factors such as digital transformation, artificial intelligence, cloud computing, and global demand for technology services. When the IT industry grows, companies such as Infosys and other major IT firms generally benefit through higher revenues and profits. However, challenges such as automation, changing client spending patterns, and global economic slowdowns can affect the entire industry. Therefore, industry analysis helps investors identify promising sectors, understand industry-specific risks, and make more informed investment decisions.

2.2.1 THE CONCEPT OF INDUSTRY

An industry is a group of firms that use similar production technologies and produce similar products or services. Industries are classified separately because each industry has unique products, production processes, risks, and growth patterns. For example, the textile industry differs significantly from the steel industry, while the pharmaceutical industry operates under different regulations and market conditions compared to the banking industry. There may be industries which are at the rising point of the cycle called sunrise industries and those which are on the decline called sunset industries. Industries can be classified on different bases, one of which is laid down by the Reserve Bank of India.

- ◇ Textiles.
- ◇ Chemical & chemical products.
- ◇ Machinery and Machine tools and Components.
- ◇ Basic Metals and Alloys.
- ◇ Transport equipment.
- ◇ Beverages and Tobacco.
- ◇ Automobiles.
- ◇ Non-metallic mineral products.
- ◇ Wood and wood Products.



2.2.1.1 Kinds of Industries

1. Growth Industry

A growth industry is characterised by high earnings growth and rapid expansion, often independent of the business cycle. Growth is mainly driven by technological innovation, changing consumer preferences, and increasing demand. For example, the Indian renewable energy sector has experienced significant growth due to government support and rising demand for clean energy. Companies such as Adani Green Energy and Tata Power have benefited from this trend. Similarly, the pharmaceutical industry has shown strong growth due to increasing healthcare needs, supporting companies such as Sun Pharmaceutical Industries and Dr. Reddy's Laboratories.

2. Cyclical Industry

A cyclical industry is one whose growth and profitability move in line with the business cycle. During economic booms, demand and profits increase, while during recessions demand declines. The automobile industry is a classic example of a cyclical industry. During periods of strong economic growth, consumers are more willing to purchase cars and two-wheelers, benefiting companies such as Maruti Suzuki India, Tata Motors, and Bajaj Auto. However, demand often slows during economic downturns.

3. Defensive Industry

A defensive industry provides products and services that satisfy basic human needs and therefore remains relatively stable during economic downturns. Demand for food, healthcare, and essential consumer goods continues even during recessions. For example, companies such as Hindustan Unilever, ITC, and Nestlé India generally experience more stable demand because consumers continue to purchase essential products regardless of economic conditions.

4. Cyclical Growth Industry

A cyclical growth industry combines characteristics of both growth and cyclical industries. These industries have strong long-term growth prospects but are also influenced by economic cycles. The housing and construction sector is a good example. Over the long run, urbanisation and rising incomes support growth, but demand may fluctuate with interest rates and economic conditions. Companies such as DLF and Larsen & Toubro benefit from long-term growth opportunities while also being affected by business cycle fluctuations.

In summary, industries respond differently to economic conditions. Therefore, investors must understand the nature of an industry before selecting individual companies for investment. Industry analysis acts as a vital link between economy analysis and company analysis, helping investors identify sectors with favourable growth and risk characteristics.

After identifying an attractive industry through industry analysis, investors should examine the industry's stage of development. Not all industries offer the same investment opportunities at all times. Some industries are just emerging, while others are

growing rapidly, reaching maturity, or even declining. Understanding the industry life cycle helps investors assess future growth potential, risks, and investment prospects.

2.2.2 Industry Life Cycle

Every Industry has a life cycle similar to a product life cycle.

An industry typically passes through four stages: pioneering, rapid growth, maturity and stabilisation, and decline. Each stage presents different opportunities and challenges for investors.

1. Pioneering Stage

The pioneering stage is the beginning phase of an industry's development. Demand for the product appears promising, but production technology is still evolving. As the market opportunity attracts many firms, competition becomes intense and only the strongest companies survive. Businesses focus on building brand identity, differentiating their products, and gaining market share. Because of the high level of uncertainty, it is often difficult for investors to identify which companies will ultimately succeed. A recent example is the electric vehicle (EV) industry in India. Companies such as Ola Electric, Ather Energy, and established automobile firms entering the EV segment are competing aggressively to capture market share in a rapidly evolving market.

2. Rapid Growth Stage

The rapid growth stage begins when a few successful firms emerge from the intense competition of the pioneering stage. These companies strengthen their market positions, improve their financial performance, and benefit from technological advancements that reduce production costs and improve product quality. Sales and profits grow quickly, and companies often begin paying regular dividends to shareholders. This stage is generally considered attractive for investment because the growth rate is higher than the industry average. The Indian pharmaceutical industry provides a good example. Companies such as Sun Pharmaceutical Industries, Dr. Reddy's Laboratories, and Cipla have expanded significantly through innovation, global market access, and increasing healthcare demand.

3. Maturity and Stabilisation Stage

As an industry develops further, it enters the maturity and stabilisation stage. Growth begins to slow, and the industry's expansion rate becomes similar to the overall economic growth rate. Competition becomes more focused on efficiency, product improvement, and customer retention rather than rapid market expansion. Companies must continuously innovate to avoid technological obsolescence and maintain profitability. Investors should closely monitor developments during this stage because future growth may become more challenging. The Indian banking industry illustrates this stage well. Major banks such as State Bank of India, HDFC Bank, and ICICI Bank continue to grow steadily, but their growth rates are generally more stable than in earlier decades.



4. Declining Stage

The declining stage occurs when demand for a product or service gradually decreases due to technological innovation, changing consumer preferences, or the availability of superior alternatives. As sales decline, company earnings and market opportunities also shrink. Even during periods of economic growth, industries in decline may struggle to expand. Investors generally avoid such industries because they offer limited growth prospects and may result in capital losses. A classic example is the market for traditional feature phones after the widespread adoption of smartphones. Companies that failed to adapt to changing consumer preferences experienced significant declines in market share and profitability.

Industry life cycle analysis complements industry analysis by helping investors understand not only how an industry is performing today but also where it is likely to move in the future. An industry with strong current performance may not necessarily offer attractive future returns if it has already reached maturity or entered decline. Conversely, an emerging industry may offer significant growth opportunities despite higher risks. Therefore, successful investors combine industry analysis with industry life cycle analysis to identify industries that possess both strong fundamentals and favourable future growth prospects.

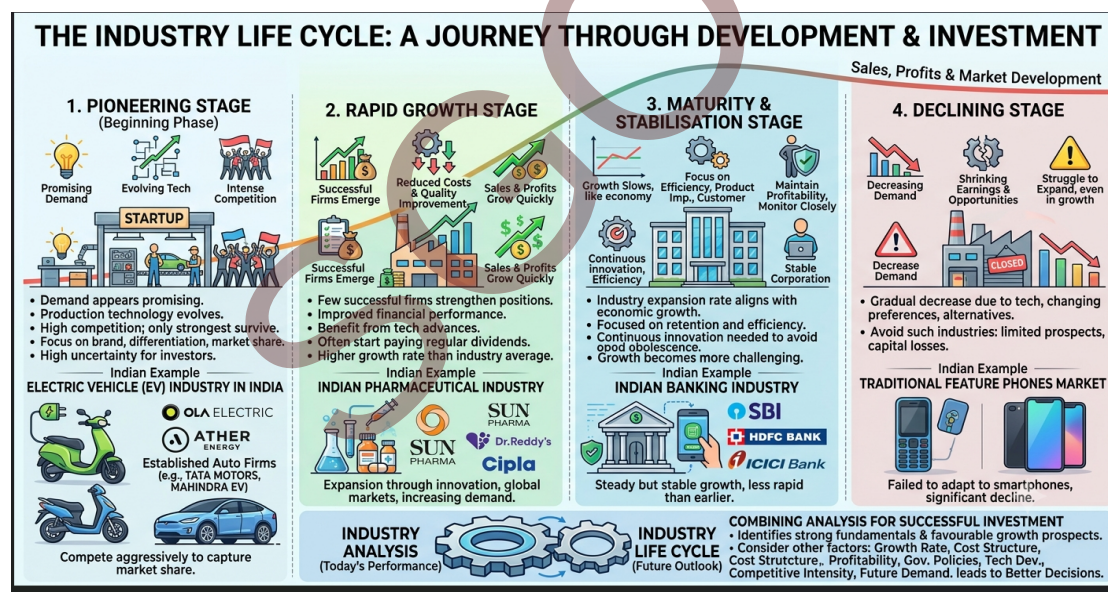


Figure 2.2.1 Industry life cycle

While understanding the industry life cycle is important, investors should also evaluate additional factors such as the growth rate of the industry, cost structure, profitability, government policies, technological developments, competitive intensity, and future demand conditions. These factors provide a more comprehensive understanding of the industry's strengths, weaknesses, opportunities, and risks, leading to better investment decisions.

2.2.3 Other Factors Affecting Industry Analysis

After understanding the industry life cycle, investors must examine several additional factors that influence an industry's performance and future prospects. An industry may appear attractive based on its growth stage, but factors such as profitability, competition, government regulations, labour conditions, and innovation can significantly affect investment returns. Therefore, a detailed analysis of these factors is essential before selecting investment companies.

1. Growth of the Industry

The historical performance of an industry in terms of growth and profitability should be carefully analysed. The past growth pattern of an industry often provides useful insights into its future prospects. Although history may not repeat itself exactly, industries that have shown consistent growth are generally expected to perform well in the future. For instance, the Indian quick commerce industry has expanded rapidly in recent years due to changing consumer lifestyles and increasing demand for instant delivery services. Companies such as Zomato and Swiggy have benefited from this growth trend.

2. Cost Structure and Profitability

The cost structure of an industry, particularly the proportion of fixed and variable costs, affects profitability and operational flexibility. Industries with high fixed costs require large investments and substantial sales volumes before becoming profitable. Once production reaches an efficient level, profits can increase significantly. Consider the cement industry, where companies such as Shree Cement and ACC invest heavily in manufacturing plants and transportation infrastructure. Their profitability largely depends on maintaining high-capacity utilisation.

3. Nature of the Product

The nature of the product determines the demand pattern of an industry. Some products are used directly by consumers, while others are used as inputs by different industries. Investors should therefore analyse both the demand for the product and the condition of industries that depend upon it. A useful illustration can be seen in the tyre industry, where companies such as MRF and Apollo Tyres depend heavily on the growth of the automobile sector. If vehicle sales increase, demand for tyres also rises.

4. Nature of the Competition

The level of competition within an industry directly affects prices, market share, and profitability. Competition may come from domestic firms, multinational corporations, or new entrants. An industry with intense competition often experiences pressure on profit margins. A good example is the consumer electronics industry, where companies such as Dixon Technologies compete with global brands and contract manufacturers. Companies that successfully differentiate their products and maintain strong distribution networks are more likely to sustain profitability.



5. Government Policy

Government policies can strongly influence the performance of an industry. Tax concessions, subsidies, regulations, import duties, and licensing requirements affect industries in different ways. Investors should carefully evaluate the policy environment before investing. A clear example is the defence manufacturing sector, where government initiatives promoting indigenous production have created opportunities for companies such as Bharat Electronics and Hindustan Aeronautics. Supportive government policies have contributed significantly to the growth of this industry.

6. Labour

The labour situation within an industry plays an important role in determining productivity and profitability. Factors such as labour availability, skill levels, industrial relations, and trade union activities affect production efficiency. For example, the jewellery manufacturing industry depends heavily on skilled artisans. Companies such as Titan Company require highly skilled craftsmen to maintain product quality and customer satisfaction. A shortage of skilled labour can affect production and growth.

7. Research and Development

Research and development (R&D) are essential for industries operating in competitive and rapidly changing markets. Continuous innovation helps companies improve product quality, reduce costs, and enter new markets. An excellent example is the electric equipment industry, where companies such as CG Power and Industrial Solutions and Havells India invest in product development and technological innovation to remain competitive. Strong R&D capabilities often provide a long-term advantage and support sustainable growth.

8. Pollution standards

Pollution standards and environmental regulations are important factors in industry analysis because industries must comply with rules related to emissions, waste disposal, and environmental protection. Failure to meet these standards can lead to penalties, production restrictions, and reputational damage. Companies such as JSW Steel and Vedanta invest in pollution-control systems and environmental management practices to comply with regulatory requirements and maintain sustainable operations.

Industry analysis is effective only when all these factors are examined together. An industry may show strong growth but face intense competition, regulatory challenges, or technological disruptions. Therefore, investors must evaluate growth, cost structure, product characteristics, competition, government policy, labour conditions, and research capabilities collectively to identify industries with favourable investment potential and sustainable profitability. After analysing the industry's growth, profitability, competition, government policies, labour conditions, environmental standards, and other factors, an investor still needs a systematic way to assess the overall strength and competitiveness of the industry. This is where analytical tools become useful.

2.2.4 Analytical Tools

Analytical tools help investors organise information, identify opportunities and threats, and understand how different forces influence the profitability of an industry. Two widely used tools for this purpose are

1. **SWOT Analysis** and
2. **Porter's Five Forces Model.**

2.2.4.1 SWOT Analysis

SWOT analysis is a simple framework used to evaluate the Strengths, Weaknesses, Opportunities, and Threats of an industry. It helps investors understand both the internal and external factors that influence industry performance.

i. Strengths

Strengths are the favourable characteristics that provide an industry with a competitive advantage. These may include strong demand, advanced technology, skilled workforce, established distribution networks, or brand recognition. For instance, the Indian pharmaceutical industry benefits from a large pool of skilled scientists and cost-effective manufacturing capabilities, which strengthen its position in the global market.

ii. Weaknesses

Weaknesses are the limitations or disadvantages that reduce an industry's competitiveness. These may include high production costs, dependence on imported raw materials, outdated technology, or labour issues. Consider the airline industry, where high fuel costs and heavy capital requirements often reduce profitability and increase financial risk.

iii. Opportunities

Opportunities are favourable external conditions that can support industry growth and profitability. These may arise from technological developments, changing consumer preferences, government incentives, or the opening of new markets. A good example is the growth of renewable energy, where increasing environmental awareness and government support have created significant opportunities for companies operating in the sector.

iv. Threats

Threats are external factors that may adversely affect an industry's performance. These include increased competition, substitute products, regulatory changes, economic slowdowns, and cheap imports. For example, domestic toy manufacturers face threats from low-cost imported products, which can reduce their market share and profitability.

2.2.4.2 Porter's Five Forces Model

While SWOT analysis provides a broad picture of an industry, investors often require a deeper understanding of the competitive environment. To achieve this, Michael E. Porter developed the Five Forces Model, which identifies five major forces that influence industry competitiveness and profitability.



1. Threat of New Entrants

The entry of new firms into an industry increases competition and can reduce profitability. The ease with which new competitors can enter depends on barriers such as capital requirements, government regulations, technology, distribution networks, and brand loyalty. Consider the commercial aircraft manufacturing industry, where extremely high investment requirements and advanced technological expertise make entry difficult for new firms.

2. Threat of Substitutes

Substitute products provide alternative ways of satisfying the same customer need. The availability of substitutes can reduce demand for an industry's products and limit profitability. For example, streaming platforms have reduced the demand for traditional cable television services because consumers can access similar entertainment content through alternative channels.

The threat of substitutes depends on:

- ◇ Buyers' willingness to switch.
- ◇ Price of the substitute product.
- ◇ Similarity in performance and quality.
- ◇ Cost involved in switching to alternatives.

3. Suppliers' Bargaining Power

Every industry depends on suppliers for raw materials, components, or services. When suppliers are few and buyers are many, suppliers can influence prices and terms of supply. For example, semiconductor manufacturers hold considerable bargaining power because many electronics producers depend on specialised computer chips that are supplied by a limited number of companies.

Suppliers' bargaining power tends to be high when:

- ◇ The number of suppliers is limited.
- ◇ There are many buyers.
- ◇ The supplied product is important and difficult to replace.
- ◇ Suppliers can enter the buyer's industry.
- ◇ Buyers have limited alternative sources of supply.

4. Buyers' Bargaining Power

Buyers can influence prices, quality, and service levels. When customers have many alternatives, they can easily switch from one producer to another, increasing their bargaining power. Consider the mobile telecommunications market, where customers can switch service providers relatively easily if they find better pricing or service quality elsewhere.

Buyers' bargaining power is generally high when:

- ◇ There are many competing sellers.
- ◇ Products are standardised.
- ◇ Switching costs are low.
- ◇ Buyers purchase large quantities.

5. Rivalry Among Existing Firms

Competition among existing firms is often the strongest force affecting industry profitability. Companies compete through pricing, advertising, product innovation, quality improvement, and customer service. Consider the fast-moving consumer goods (FMCG) industry, where firms constantly compete to increase market share and maintain customer loyalty.

The intensity of rivalry depends on:

Number of competitors in the market.

Industry cost structure.

Product differentiation.

Switching costs faced by customers.

Industry growth rate.

When products are highly similar and switching costs are low, competition becomes intense, and profit margins tend to decline.



Figure 2.2.2 Porter's five forces that affect competitiveness

SWOT analysis helps investors identify the strengths, weaknesses, opportunities, and threats of an industry, while Porter's Five Forces Model explains why an industry is competitive and how profitability is influenced. Together, these tools provide a comprehensive understanding of an industry's attractiveness and help investors make more informed investment decisions.

Recap

- ◇ Industry analysis helps investors evaluate the performance, opportunities, risks, and future prospects of an industry before selecting companies.
- ◇ An industry is a group of firms that use similar technologies and produce similar products or services.
- ◇ Industries are broadly classified as growth, cyclical, defensive, and cyclical growth industries based on their response to business cycles.
- ◇ Every industry passes through four life cycle stages: pioneering, rapid growth, maturity and stabilisation, and decline.
- ◇ SWOT analysis helps identify an industry's strengths, weaknesses, opportunities, and threats.
- ◇ Porter's Five Forces Model evaluates industry competitiveness through new entrants, substitutes, suppliers, buyers, and rivalry among firms.
- ◇ Effective industry analysis enables investors to identify attractive industries and make informed investment decisions.

Objective Questions

1. What is the process of evaluating the performance, prospects, and challenges of an industry called?
2. Which stage of the industry life cycle is characterised by intense competition and uncertainty?
3. What type of industry generally grows independently of the business cycle?
4. In which stage of the industry life cycle does the growth rate become similar to the overall economic growth rate?
5. Which factor examines the proportion of fixed and variable costs in an industry?
6. What analytical tool is used to identify an industry's strengths, weaknesses, opportunities, and threats?
7. Who developed the Five Forces Model of industry competitiveness?

8. Which force in Porter's model examines the impact of alternative products on industry profitability?
9. What term refers to the influence customers have on prices and product quality?

Answers

1. Industry analysis
2. Pioneering stage
3. Growth industry
4. Maturity and stabilisation stage
5. Cost structure
6. SWOT analysis
7. Michael E. Porter
8. Threat of substitutes
9. Buyers' bargaining power

Self-Assessment Questions

1. Explain the concept, importance, and classification of industries in the context of industry analysis.
2. Discuss the stages of the industry life cycle and explain their significance for investment decisions.
3. Examine the major factors affecting industry analysis, including growth, profitability, competition, government policy, labour, and research and development.
4. Explain SWOT Analysis and discuss how it helps investors evaluate the strengths, weaknesses, opportunities, and threats of an industry.
5. Describe Porter's Five Forces Model and analyse how it helps in assessing the competitiveness and profitability of an industry.



Assignments

1. Discuss how Porter's Five Forces Model can be used to evaluate the competitive position and long-term profitability of an industry.
2. Analyse how industry analysis helps investors identify attractive investment opportunities and minimise investment risk.
3. Assess the usefulness of SWOT Analysis in identifying the strengths, weaknesses, opportunities, and threats of an industry.
4. Evaluate the major factors that determine the growth, profitability, and competitiveness of an industry.
5. Examine the different stages of an industry's life cycle and discuss how each stage influences investment decisions.

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Unit

Company Analysis

Learning Outcomes

- ◇ Gain knowledge about company analysis
- ◇ Get an overview of analysis of financial statements under company analysis
- ◇ Comprehend the concept of SWOT analysis of a company

Prerequisite

In the late 1990s, Enron Corporation was considered one of the most successful companies in the world. Investors admired its rapid growth, rising share prices, and impressive profit figures. Many people rushed to buy its shares, believing that the company would continue to grow forever. Yet, in 2001, the shocking truth emerged. Enron had hidden huge debts and presented a misleading picture of its financial position. Within a short period, the company collapsed, thousands of employees lost their jobs, and investors lost billions of dollars. The incident showed that a company's reputation and rising share price alone are not enough reasons to invest. Investors must carefully analyse a company's financial statements, management quality, profitability, risks, and future prospects before making investment decisions. This famous corporate failure highlights the importance of company analysis, which helps investors distinguish between companies that merely appear successful and those that are genuinely strong and sustainable.

Keywords

Financial statements, leverage ratios, liquidity ratios, profitability ratios, efficiency ratios, SWOT analysis

Discussion

Company analysis is the final stage of fundamental analysis. Company analysis is a study of the variables which influence the future price of a company's shares. The economy analysis provides the investor a broad outline of the prospects of growth in the economy. The industry analysis helps the investor to select the industry in which investment would be rewarding. Now he has to decide the company in which he should invest his money. Company analysis provides the answer to this question.

Think of an investor named Mr. Dhruvin. First, Mr. Dhruvin studies the overall economy to understand whether the country is growing and whether business conditions are favourable. Next, he examines different industries such as banking, information technology, automobiles, and pharmaceuticals to identify the industries with good future prospects. After selecting a promising industry, he still has many companies to choose from. For example, if he chooses the automobile industry, he must decide whether to invest in Maruti, Tata Motors, Mahindra & Mahindra, or another company. Company analysis helps him make this final investment decision.

Company analysis deals with the estimation of return and risk of individual shares. This calls for information. Many pieces of information influence investment decisions. Information regarding companies can be broadly classified into two groups: internal and external. Internal information consists of data and events made public by companies concerning their operations. Internal information sources include annual reports to shareholders, public and private statements by company officers, the company's financial statements, etc. External sources of information are those generated independently outside the company. These are prepared by investment services and the financial press.

For example, suppose Mr. Dhruvin is analysing a company before investing. He reads the company's annual report to understand its sales, profits, and future plans. He also studies the financial statements to see whether the company is financially strong. At the same time, he refers to newspaper articles, stock market reports, and investment research reports prepared by independent agencies. By combining information from both internal and external sources, he obtains a clearer picture of the company's performance and future prospects.

In company analysis, the analyst tries to forecast the future earnings of the company because there is strong evidence that earnings have a direct and powerful effect upon share prices. The level, trend, and stability of a company's earnings, however, depend on several factors concerning the operations of the company.

Imagine that Mr.Dhruvin finds two companies operating in the same industry. Company A has been earning steady profits and has shown continuous growth over the last several years. Company B, on the other hand, reports highly fluctuating profits. Most investors would feel more confident investing in Company A because stable and growing earnings generally indicate a stronger business. Since share prices are closely related to earnings, analysts carefully study the company's past performance, current operations, and future plans to estimate how much profit the company is likely to earn in the future. These earnings forecasts help investors assess the expected return and risk of investing in the company's shares.

The prosperity of a company depends on its profitability and financial health. The financial statements published by a company periodically help us assess the company's profitability and financial health.

2.3.1 FINANCIAL STATEMENTS

The two basic financial statements provided by a company are the balance sheet and the profit and loss account. The first gives us a picture of the company's assets and liabilities, while the second gives us a picture of its earnings. Suppose Mr Dhruvin wants to invest in a company. Before investing, he wants to know whether the company is financially strong and earning good profits. Just as a doctor checks a person's health through medical reports, Mr.Dhruvin checks the financial health of a company through its financial statements. The two most important reports he studies are the balance sheet and the profit and loss account. These statements help him understand whether the company is managing its resources well and generating sufficient profits.

The balance sheet lists a company's assets and liabilities on a specific date. The major categories of assets are fixed assets and current assets. Fixed assets are those assets which are intended to be used up over a period of several years. Current assets are those assets which are intended to be converted into cash in the near future (within one year). The major categories of liabilities are outside liabilities and liabilities towards shareholders. The outside liabilities are categorised as short-term and long-term liabilities. Short-term liabilities expected to be paid off within the next one year are known as current liabilities. The balance sheet indicates the financial position of a company on a particular date, namely the last day of the accounting year.

For example, imagine Mr.Dhruvin is analysing a manufacturing company. He finds that the company owns land, buildings, machinery, and vehicles. These are fixed assets because they are used for many years in the business. He also notices cash, inventory, and amounts receivable from customers. These are current assets because they can be converted into cash within a short period. On the liabilities side, the company has bank loans, amounts payable to suppliers, and shareholders' funds. By examining the balance sheet, Mr.Dhruvin gets a snapshot of what the company owns and what it owes on a particular date, much like looking at a photograph of the company's financial position at the end of the accounting year.

The profit and loss account, also called the income statement, reveals the revenue earned, the costs incurred, and the resulting profit or loss of the company for one



accounting year. The profit after tax (PAT) divided by the number of shares gives the earnings per share (EPS) which is a figure in which most investors are interested. The profit-and-loss account summarises the activities of a company during an accounting year.

To continue the example, Mr.Dhruvin now studies the profit and loss account. He finds that the company earned ₹100 crore from sales during the year and incurred expenses such as raw materials, salaries, electricity, and taxes. After deducting all expenses, the company earned a profit. This final profit is known as Profit After Tax (PAT). If the company has 10 crore shares and the PAT is ₹50 crore, the Earnings Per Share (EPS) will be ₹5 per share. Since investors closely watch EPS as an indicator of profitability, Dhruvin uses this information to judge whether the company is capable of generating good returns for its shareholders. Thus, while the balance sheet shows the company's financial position on a specific date, the profit and loss account shows how successfully the company performed throughout the year.

2.3.1.1 Analysis of financial statements

The financial statements of a company can be used to evaluate the company's financial performance. Financial ratios are most extensively used for this purpose. Ratio analysis helps an investor to determine the strengths and weaknesses of a company. It also helps him to assess whether the financial performance and financial strength are improving or deteriorating. Ratios can be used for comparative analysis either with other firms in the industry through a cross-sectional analysis or with past data through a time-series analysis. Different ratios measure different aspects of a company's performance or financial health. Four groups of ratios are commonly used for analysing the performance of a company.

Imagine that Dhruvin wants to invest in a company. He has already studied its balance sheet and profit and loss account. However, simply looking at the figures may not provide a clear picture. Therefore, he uses financial ratios, which act like a health check-up report for a company. Just as a doctor uses different tests to evaluate a person's health, Dhruvin uses different ratios to evaluate a company's financial strength, profitability, efficiency, and ability to meet its obligations.

A. Liquidity Ratios

These ratios measure the company's ability to fulfil its short-term obligations and reflect its short-term financial strength or liquidity.

The commonly used liquidity ratios are:

1. Current Ratio

Current Ratio = $\text{Current Assets} \div \text{Current Liabilities}$

2. Quick Ratio (Acid-Test Ratio)

Quick Ratio = $(\text{Current Assets} - \text{Inventory} - \text{Prepaid Expenses}) \div \text{Current Liabilities}$

A higher current ratio enables a company to meet its short-term obligations even if the value of current assets declines. The quick ratio is a more rigorous measure of liquidity because it excludes inventory and prepaid expenses, which may not be easily converted into cash. Both ratios should be used together to analyse the liquidity position of a company.

Suppose Dhruvin finds that a company has current assets of ₹20 lakh and current liabilities of ₹10 lakh. The current ratio is 2:1, indicating that the company has sufficient resources to pay its short-term debts. If a large portion of the current assets consists of inventory that may not be sold quickly, Dhruvin also checks the quick ratio to obtain a more realistic assessment of liquidity.

B. Leverage Ratios

These ratios are also known as capital structure ratios. They measure the company's ability to meet its long-term debt obligations and indicate its long-term solvency.

The commonly used leverage ratios are:

1. Debt-Equity Ratio

Debt-Equity Ratio = Long-Term Debt ÷ Shareholders' Equity

2. Total Debt Ratio (Debt to Total Assets Ratio)

Total Debt Ratio = Total Debt ÷ Total Assets

3. Proprietary Ratio

Proprietary Ratio = Shareholders' Equity ÷ Total Assets

4. Interest Coverage Ratio

Interest Coverage Ratio = Earnings Before Interest and Taxes (EBIT) ÷ Interest

The first three ratios indicate the relative contribution of owners and creditors in financing the assets of the company. These ratios reflect the safety margin available to long-term creditors. The interest coverage ratio measures the ability of the company to meet its interest payments arising from debt. Dhruvin compares two companies. Company A relies heavily on borrowed funds, while Company B uses more shareholders' funds. A very high debt-equity ratio may indicate higher financial risk because the company must regularly pay interest and repay loans. Therefore, Dhruvin carefully examines leverage ratios before making an investment decision.

C. Profitability Ratios

The profitability of a company can be measured through profitability ratios. These ratios relate profits either to sales, investment, or equity shares.

i. Profitability Related to Sales

a. Gross Profit Ratio

Gross Profit Ratio = Gross Profit ÷ Sales



b. Operating Profit Ratio

Operating Profit Ratio = $\text{EBIT} \div \text{Sales}$

c. Net Profit Ratio

Net Profit Ratio = $\text{Earnings After Tax (EAT)} \div \text{Sales}$

d. Administrative Expenses Ratio

Administrative Expenses Ratio = $\text{Administrative Expenses} \div \text{Sales}$

e. Selling Expenses Ratio

Selling Expenses Ratio = $\text{Selling Expenses} \div \text{Sales}$

f. Operating Expenses Ratio

Operating Expenses Ratio = $(\text{Administrative Expenses} + \text{Selling Expenses}) \div \text{Sales}$

g. Operating Ratio

Operating Ratio = $(\text{Cost of Goods Sold} + \text{Operating Expenses}) \div \text{Sales}$

Example

Suppose a company generates sales of ₹100 crore and earns a net profit of ₹15 crore. The net profit ratio is 15%. This means that the company earns ₹15 as profit for every ₹100 of sales. A higher ratio generally indicates better profitability.

ii. Profitability Related to Investment

a. Return on Assets (ROA)

Return on Assets = $\text{Earnings After Tax} \div \text{Total Assets}$

b. Return on Capital Employed (ROCE)

Return on Capital Employed = $\text{Earnings before interest and tax} \div \text{Total Capital Employed}$

c. Return on Equity (ROE)

Return on Equity = $\text{Earnings After Tax} \div \text{Shareholders' Equity}$

Dhruvin prefers companies that utilise their assets efficiently. If two companies earn the same profit but one uses fewer assets, that company will have a higher return on assets and may be considered more efficient.

iii. Profitability Related to Equity Shares

a. Earnings Per Share (EPS)

EPS = $\text{Net Profit Available to Equity Shareholders} \div \text{Number of Equity Shares}$

b. Earnings Yield

Earnings Yield = $\text{EPS} \div \text{Market Price per Share}$

c. Dividend Yield

Dividend Yield = $\text{Dividend Per Share (DPS)} \div \text{Market Price per Share}$

d. Dividend Payout Ratio

Dividend Payout Ratio = $\text{DPS} \div \text{EPS}$

e. Price-Earnings Ratio (P/E Ratio)

P/E Ratio = $\text{Market Price per Share} \div \text{EPS}$

Assume a company earns ₹10 per share and its market price is ₹200 per share. The P/E ratio is 20. Investors often use this ratio to determine how much they are willing to pay for each rupee of earnings generated by the company.

iv. Overall Profitability (Earning Power)

Overall profitability is measured by the Return on Investment (ROI).

ROI is the product of:

Net Profit Ratio × Investment Turnover

or

ROI = Earnings After Tax ÷ Total Assets

Return on Investment is a central measure of the earning power or operating efficiency of a company.

Example

Dhruvin considers ROI as an overall scorecard of company performance. A higher ROI indicates that the company is generating more profit from the resources invested in the business.

D. Activity or Efficiency Ratios

These ratios are also known as turnover ratios. They measure the efficiency of asset management. They express the relationship between sales and different types of assets, showing the speed with which these assets generate sales.

Important activity ratios include:

1. Current Assets Turnover

Current Assets Turnover = $\text{Sales} \div \text{Current Assets}$

2. Fixed Assets Turnover

Fixed Assets Turnover = $\text{Sales} \div \text{Fixed Assets}$



3. Total Assets Turnover

$$\text{Total Assets Turnover} = \text{Sales} \div \text{Total Assets}$$

4. Inventory Turnover

$$\text{Inventory Turnover} = \text{Sales} \div \text{Average Inventory}$$

5. Debtors Turnover

$$\text{Debtors Turnover} = \text{Sales} \div \text{Average Debtors}$$

Suppose two companies have the same amount of inventory. If one company sells its inventory much faster than the other, it will have a higher inventory turnover ratio. This indicates better efficiency in managing inventory and generating sales.

Ratio analysis is a method of interpreting the financial statements of a company. A single ratio by itself is not very useful. A comprehensive evaluation of a company's financial performance emerges only from a study of all the important ratios together.

Returning to our example, Dhruvin does not rely on just one ratio before investing. Instead, he studies liquidity, leverage, profitability, and efficiency ratios collectively. Although these ratios reveal the company's past performance, an investor is mainly interested in future prospects. Therefore, by analysing past performance and current financial strength, Dhruvin attempts to forecast the company's future growth, profitability, and investment potential.

2.3.2 Other Variables

The future prospects of a company would also depend upon several other variables, some of which are given below:

1. Company's market share
2. Capacity utilisation
3. Modernisation and expansion plans
4. Order book position
5. Availability of raw materials

For example, consider a company that holds a large share of the market and operates its production facilities at a high level of capacity utilisation. If the company is also planning to expand its operations, has a strong order book, and enjoys a steady supply of raw materials, its future growth prospects are likely to be favourable. Therefore, investors should carefully examine these factors while evaluating a company.

Some of this information may be available in the directors' report and the chairman's speech at the annual general meeting of the company. Others may be available in financial journals and magazines.

The most important variable affecting the future prospects of a company is perhaps the quality of its management. But assessing the quality and competence of manage-

ment is perhaps the most difficult task in company analysis. Some critical aspects of a company's management that every investor must consider carefully are its commitment and competence, professionalism, future orientation, image building, investor friendliness, and government relations building.

For instance, two companies may have similar financial performance. Still, one may be managed by a professional and competent management team with a clear vision for future growth, while the other may not. The company with better management is more likely to adapt to changing business conditions, maintain good relations with investors and government authorities, and achieve sustainable growth over time. The future of a company depends to a very great extent on the quality and competence of its management.

The analysis of financial statements, financial ratios, management quality, market share, capacity utilisation, expansion plans, order book position, and availability of raw materials provides valuable information about a company's performance and future prospects. While each of these factors offers important insights, investors also need a systematic method to combine them and evaluate the company as a whole. SWOT analysis serves this purpose by helping investors identify the company's strengths and weaknesses within the organisation, as well as the opportunities and threats arising from the external business environment. Thus, SWOT analysis provides a comprehensive framework for assessing the overall position and future potential of a company.

2.3.4 SWOT Analysis under Company Analysis

SWOT analysis is an important tool used in company analysis to evaluate a company's overall position and future prospects. SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. It helps investors understand both the internal and external factors that may influence the performance of a company. While strengths and weaknesses are internal factors that arise within the company, opportunities and threats are external factors that arise from the business environment.

When analysing a company, an investor may find that it has a well-known brand name, loyal customers, efficient management, and a strong financial position. These are considered strengths because they provide a competitive advantage and help the company perform better than its rivals. For instance, a company with a large market share and a trusted brand is often in a stronger position to attract customers and generate profits.

At the same time, the company may have certain weaknesses, such as outdated technology, high production costs, excessive debt, or poor operational efficiency. These weaknesses can reduce profitability and limit future growth. A company that relies on old machinery, for example, may face higher maintenance costs and lower productivity than its competitors.

Investors should also look for opportunities that can support future growth. Opportunities may arise from increasing demand for products, technological advancements, entry into new markets, favourable government policies, or changing



consumer preferences. For example, a company manufacturing electric vehicles may benefit from growing environmental awareness and government support for clean energy transportation.

In addition, a company may face threats from factors beyond its control. These threats may include intense competition, economic downturns, rising raw material costs, technological changes, or new government regulations. A company may lose market share if a competitor introduces a superior product at a lower price or if changing customer preferences reduce demand for its existing products.

Thus, SWOT analysis provides a comprehensive picture of a company's current position and future potential. By identifying strengths, weaknesses, opportunities, and threats, investors can better understand the company's competitive position and assess whether it is likely to achieve sustainable growth in the future. It therefore serves as a valuable component of company analysis and helps investors make more informed investment decisions.

Recap

- ◇ Company analysis is the final stage of fundamental analysis used to decide where to invest after economy and industry analysis.
- ◇ It helps investors estimate the return and risk of individual shares.
- ◇ Information for analysis comes from internal sources (annual reports, financial statements) and external sources (financial press, research reports).
- ◇ Earnings of a company strongly influence share prices and future investment value.
- ◇ Financial statements (balance sheet and profit & loss account) show the financial position and profitability of a company.
- ◇ Balance sheet shows assets and liabilities, while profit & loss account shows income, expenses, and profit (EPS, PAT).
- ◇ Financial ratio analysis helps evaluate liquidity, leverage, profitability, and efficiency of a company.
- ◇ Ratios help compare performance with other companies and past performance to identify strengths and weaknesses.
- ◇ Other important variables include market share, capacity utilisation, expansion plans, order book, and raw material availability.
- ◇ SWOT analysis integrates all factors to assess strengths, weaknesses, opportunities, and threats, helping investors make better decisions.

Objective Questions

1. Final stage of fundamental analysis
2. Financial statement showing assets and liabilities
3. Financial statement showing income and expenses
4. Profit after tax divided by number of shares
5. Ratio measuring short-term liquidity
6. Quick ratio excludes this item
7. Ratio showing capital structure
8. Profitability measure using net profit and equity
9. Ratio measuring efficiency of inventory
10. SWOT expansion “T” stands for

Answers

1. Company analysis
2. Balance sheet
3. Income statement (Profit and Loss Account)
4. EPS
5. Current ratio
6. Inventory
7. Leverage
8. ROE
9. Inventory turnover
10. Threats

Self-Assessment Questions

1. Explain the concept and significance of company analysis as the final stage of fundamental analysis.
2. Discuss the role of financial statements in evaluating the financial performance and position of a company.



3. Explain ratio analysis and its importance in assessing the financial strength and weakness of a company.
4. Describe liquidity, leverage, profitability, and activity ratios used in company analysis.
5. Explain SWOT analysis and discuss its importance in evaluating a company's future prospects.

Assignments

1. How does company analysis help an investor in the final stage of investment decision-making?
2. Discuss the importance of the balance sheet and profit and loss account in judging a company's performance.
3. Explain how liquidity, leverage, and profitability ratios help in analysing a company.
4. What is the role of financial information (internal and external) in company analysis?
5. Discuss the importance of SWOT analysis in understanding a company's future prospects.

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Suggested Reading

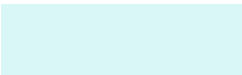
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Technical Analysis



Unit 1

Technical Analysis

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ Explain the concept and importance of Technical Analysis.
- ◇ Describe the principles of Dow Theory and Eliot Wave Theory.
- ◇ Comprehend the different types of stock market charts.
- ◇ Illustrate market trends and trend reversal patterns.
- ◇ Use technical indicators to analyse market movements.

Prerequisite

Every morning, a small investor checked the stock market before starting the day's work. After watching the market for several weeks, one thing became clear — prices did not move randomly all the time. Sometimes they moved upward for many days, sometimes downward, and certain patterns seemed to repeat again and again. Slowly, the investor began to understand that market movements often follow trends and signals that can be studied carefully to make better investment decisions.

This idea forms the basis of Technical Analysis, which studies past price movements and market behaviour to predict future trends. Important theories such as the Dow Theory and Eliot Wave Theory explain how market trends are formed and how investor psychology affects prices. Different types of charts help in identifying trends and trend reversal patterns, while technical indicators assist investors in analysing market momentum and strength. However, Technical Analysis also

has certain limitations, as market conditions may change unexpectedly. This unit introduces the concepts, theories, charts, indicators, and limitations of Technical Analysis used in investment decision-making.

Keywords

Technical analysis, chart pattern, trend reversals, Dow theory, Eliot wave theory

Discussion

3.1.1 Concept of Technical Analysis

Technical analysis is a study of market data in terms of factors affecting supply and demand schedules, such as prices, volume of trading, etc. It is a simple and quick method of forecasting the behaviour of share prices. In fundamental analysis, investors make investment decisions by estimating the intrinsic value of a company's shares using factors such as earnings, assets, growth, and financial performance. This value is then compared with the market price to identify whether the share is underpriced, overpriced, or fairly priced.

Apart from this method, another approach called Technical Analysis focuses mainly on past price and trading patterns to predict future share price movements. Technical analysis is based on the idea that market prices often move in identifiable patterns and trends that tend to repeat over time. By studying historical price movements and trading volume, analysts attempt to forecast future market behavior.

The basic assumption of technical analysis is that share prices move in trends or waves. These trends may move upward, downward, or sideways. Past price behaviour is believed to influence future price movements; therefore, analysts study charts, price patterns, and market trends to estimate future share prices.

For example, consider the share price movement of Infosys over a certain period. The stock price may rise continuously for several months, decline for some time, or remain stable depending on market demand and supply conditions. These movements are influenced by factors such as investor expectations, economic conditions, market news, and investor psychology.

The direction in which share prices move is called a trend. When share prices continuously rise over a period, it is called an uptrend or rising trend. A market showing rising prices is also known as a bull market. In contrast, when prices continuously fall, it is called a downtrend or falling trend, and such a market is known as a bear market.

An uptrend is generally characterised by higher tops and higher bottoms. For instance, if the share price of Infosys rises from ₹1,200 to ₹1,500 over several months, each new high price becomes higher than the previous high, and each low price also remains higher than the previous low. This indicates a strong upward trend.

Similarly, a downtrend is characterised by lower tops and lower bottoms, where prices continue to decline over time. When the direction of a trend changes from upward to downward or vice versa, it is known as a trend reversal. Identifying these reversals early helps investors make better buying and selling decisions. If prices begin to fall after an uptrend, investors may consider selling their shares, whereas a rising trend may encourage buying decisions. When prices move without a clear upward or downward direction, the market is said to be moving sideways, and many investors prefer to wait until a clear trend emerges.

Testing Technical Trading Rules

Technical analysts think that the only important information to work from is the picture given by price and volume statistics. With the help of the following Technical Trading Rules, the technicians attempt to correctly catch changes in trend and take advantage of them.

3.1.2 Dow Theory

The Dow theory has always been a very integral part of technical analysis. The Dow Theory was introduced to the world by Charles H. Dow, who also founded the Dow – Jones financial news service (Wall Street Journal), presented in a series of articles in the Wall Street Journal between 1900 and 1902, which in later years was referred to as the “Dow theory”. Much credit goes to William P Hamilton, who compiled these articles with relevant examples over a period of 27 years. This is one of the earliest and most influential theories of technical analysis. It proposes that stock market movements are not random but follow identifiable trends that can help investors predict future market direction. According to Dow, stock prices reflect all available information in the market, and no single investor or institution can significantly influence the market's main trend for a long period. They may only affect short-term price movements.

Dow Theory explains that stock market movements occur simultaneously at three different levels:

- i. Primary movements-** The primary movements are the most important long-term movements that can be compared to the tides in the ocean.
- ii. Secondary reactions-** The secondary reactions are short-term movements which restrain the primary movements. These movements go against the primary movements. Such movements are hence called corrections and are compared to that of waves in the ocean.
- iii. Minor movements-** The minor movements are of very short duration and are compared to ripples in the ocean. They represent the daily fluctuations in the market.

The direction of stock market movements is different in a bull market and bear market. A line chart can be used to graphically represent these movements by plotting the closing prices of shares or closing values of the market index against the corresponding trading days.



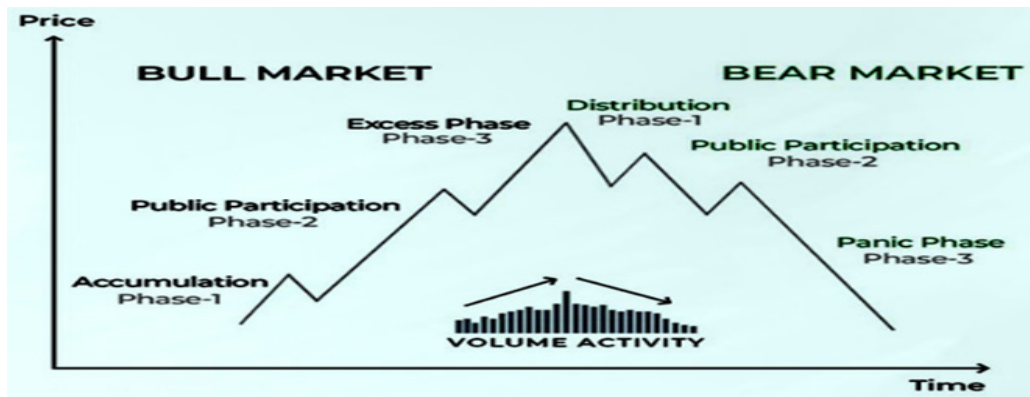


Figure 3.1.1 Primary and secondary movements in the bull and bear market.

The line chart in Figure 3.1.1 illustrates the primary movements and secondary reactions that occur in both bull and bear markets.

A bull market is a market in which prices generally move upward. Investors are optimistic and buy securities because they expect prices to rise in the future. A key feature of a bull market is that each new peak and trough is higher than the previous one.

The bull market usually develops in three phases:

1. **Phase 1:** Investors gain confidence in the future prospects of businesses and begin buying shares.
2. **Phase 2:** More people notice the rising trend and start investing, which pushes prices even higher.
3. **Phase 3:** Experienced investors begin selling their shares to earn profits because they believe prices have reached high levels.

During these upward movements, there are temporary declines known as secondary reactions. These short-term corrections may occur due to profit booking, changes in investor sentiment, speculation, or economic policy changes. However, they do not change the overall upward trend.

A bear market is a market in which prices generally move downward. Investors become pessimistic and expect prices to fall further. In a bear market, each new peak and trough is lower than the previous one.

The bear market also develops in three phases:

1. **Phase 1:** Investors start selling shares because they lose confidence in the market.
2. **Phase 2:** Negative news, such as poor company performance or economic slowdown, encourages more investors to sell, causing prices to fall further.
3. **Phase 3:** Fear and panic dominate the market, leading to heavy selling and sharp declines in prices.

Like a bull market, a bear market also experiences secondary reactions, which are temporary upward movements. These may result from short-term optimism, technical factors, or brief improvements in market conditions. However, they do not reverse the overall downward trend. According to Dow Theory, understanding primary trends, secondary reactions, and minor price fluctuations helps investors identify the direction of the market and make better investment decisions.

3.1.3 Elliot Wave Theory

The Elliot Wave Theory was developed by Ralph Nelson Elliot in 1934 to study stock market behaviour. The theory states that stock market movements follow specific, predictable patterns of waves based on investor psychology. These patterns reflect shifts in market sentiment from bullish to bearish and back again. A wave describes price movement in the market induced by demand and supply. The following figure depicts the waves suggested in Elliot wave theory.

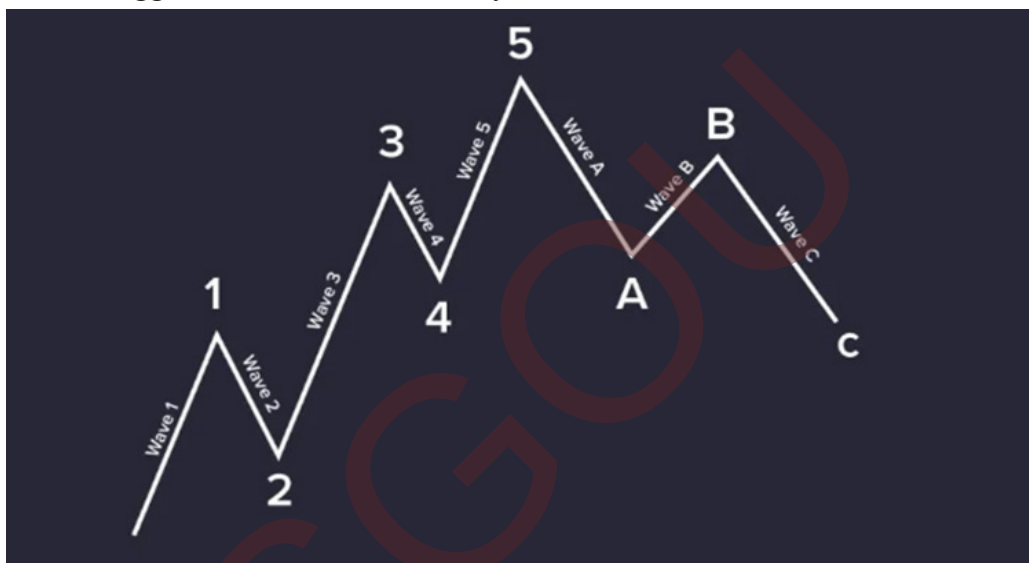


Figure 3.1.2 Elliot Wave Theory

3.1.2 Eliot Wave Theory

As shown in the above figure, the theory postulates that there are three waves called impulse waves that move in the direction of the main trend. In the above figure, wave 1, wave 3, and wave 5 are impulse waves. In a bullish phase, wave 1, 3, and 5 move upwards, while in a bearish phase, wave 1, 3, and 5 move downwards. The next sets of waves are called the corrective waves (Wave 2 and wave 4 in the figure), which move in the opposite direction to that of wave 1, 3 and 5. Wave 5 is followed by corrective waves ABC, in which A and C move in a direction opposite to the impulse waves with a greater degree of correction than wave 2 and wave 4, and B in the direction of the main trend. After the eight-wave cycle is completed, a new cycle begins with similar impulses emerging from market trading.

The Elliot Wave Theory thus helps in understanding and predicting stock market behaviour by analysing patterns of waves that reflect shifts in investor sentiment. By identifying impulse and corrective waves within these cycles, traders can better

anticipate market trends and potential reversals.

3.1.4 Price Charts

Technical analysts use different types of charts and patterns to study share price movements and predict future prices. These charts present price information in a graphical form. They are usually prepared using a share's opening price, closing price, highest price, and lowest price for a trading day.

Charts are drawn on an XY graph, where:

The X-axis represents trading days or time periods.

The Y-axis represents share prices.

The most commonly used chart is:

a. Line Chart

A line chart is created by plotting the closing price of a share for each trading day. The trading days are shown on the X-axis, while the corresponding closing prices are shown on the Y-axis. The plotted points are then connected with straight lines. This is a simple and easy-to-understand chart that helps investors identify the overall market trend and price movements over time.

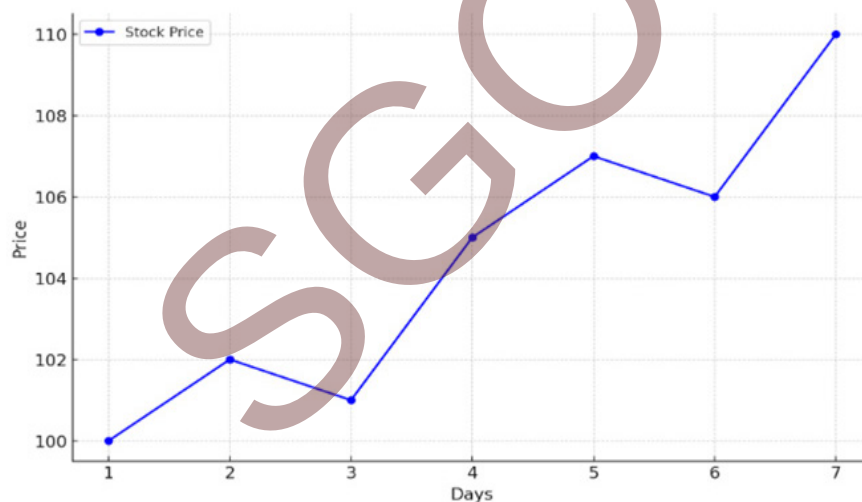


Figure 3.1.3 Line Chart

3.1.3 Line Chart

b. Bar chart

A bar chart is the most popular chart, which is drawn using the highest price, lowest price, closing price, and the opening price of a share on a day. A line is drawn by connecting the highest price, which will be plotted on top, and the lowest price of a day, which will be plotted on the bottom. The closing price is represented by a small horizontal hash on the right side of the bar, and the opening price is represented using a small horizontal hash on the left side of the bar.



Figure 3.1.4 Bars in a bar chart for technical analysis

C. Japanese Candlestick Charts

Japanese Candlestick Charts are similar to bar charts and are constructed using the opening price, closing price, highest price, and lowest price of a share. Each trading day is represented by a candlestick. The highest and lowest prices are shown by a vertical line, while the opening and closing prices are displayed within a rectangular body, creating a candlestick shape. When the closing price is higher than the opening price, it is called a white candlestick, indicating a price rise. When the closing price is lower than the opening price, it is called a black candlestick, indicating a price decline. If the opening and closing prices are the same, the candlestick is known as a Doji, which reflects market indecision. Japanese candlestick charts are popular among technical analysts because they clearly illustrate price movements and market trends.

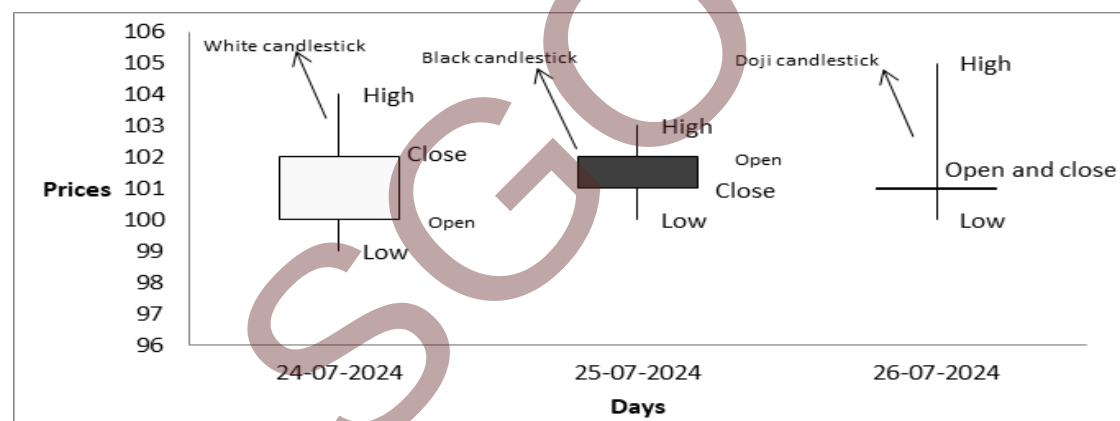


Figure 3.1.5 Japanese candlesticks.

3.1.5 Chart Patterns

Identifying a change in market trends is important for investors when deciding whether to buy or sell shares. Technical analysts use chart patterns to identify such changes, and one of the most common patterns is support and resistance.

a. Support and resistance

Support is the price level at which a falling share price stops declining and starts rising again because buying interest increases. When these low points are connected, they form a support line. This line indicates a price level where demand is strong enough to prevent further price declines. For example, if the share price of ABC Ltd. repeatedly falls to ₹200 and then rises, ₹200 acts as a support level. If the share price falls below

this support line, it may signal a further price decline.

Resistance is the price level at which a rising share price stops increasing and starts falling because selling pressure increases. When these high points are connected, they form a resistance line. For example, if the share price of ABC Ltd. repeatedly rises to ₹300 and then falls, ₹300 acts as a resistance level. If the share price rises above this resistance line, it may indicate a further price increase.

When a resistance level is broken, it often becomes a new support level. For instance, if ABC Ltd.'s share price breaks above the ₹300 resistance level and rises to ₹350, the ₹300 level may later act as support if the price falls back but does not move below it. Similarly, when a support level is broken, it can become a new resistance level. Thus, support and resistance levels often reverse their roles once they are breached.

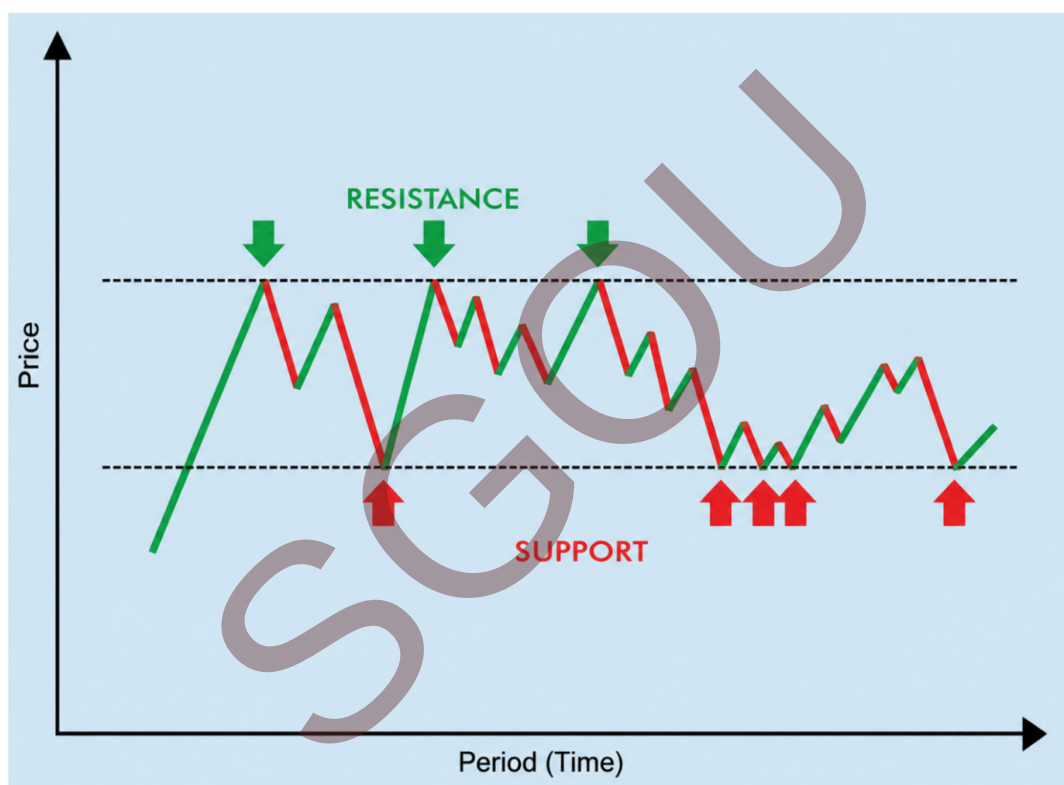


Figure 3.1.6 Support and Resistance levels

b. Reversal patterns

When the direction of a trend changes, it is known as a trend reversal. A trend reversal occurs when a share which depicted an uptrend falls and vice versa. These trend reversals can be represented using chart formations through reversal patterns. The following are some of the important reversal patterns used in technical analysis:

1. Head and shoulder formation: The head and shoulders reversal pattern is a chart formation that typically appears at the end of a prolonged uptrend, resembling a person's head and shoulders. The first rise, known as the left shoulder, results from investors' enthusiastic buying, pushing the share price to a peak. The next and highest

peak forms the head. The left shoulder and the head form the higher highs, indicating the existing upward trend. The right shoulder ending below the head holds the downtrend. A neckline is drawn connecting the two bottoms that occur in between the heads and shoulders. When the price of the share breaks the neckline, it indicates a change in the trend to downward.



Figure 3.1.7 Head and Shoulder Formation

Inverse head and shoulder formation: The inverted head and shoulders pattern is a chart formation that typically signals the reversal of a downtrend, resembling an upside-down head and shoulders. The first dip, known as the left shoulder, results from a wave of selling pressure that pushes the share price to a low. Following this, the price recovers slightly before dropping again to form the head, which is the lowest point of the pattern. This head is bordered by two troughs (shoulders) and represents the bottom of the downtrend. The right shoulder forms as another dip that doesn't reach the depth of the head, indicating diminishing selling pressure. A neckline is drawn by connecting the two peaks between the head and shoulders. When the share price breaks above this neckline, it signals a reversal to an upward trend.



Figure 3.1.8 Inverse head and shoulder pattern

C. Continuation patterns: Continuation patterns are those patterns that occur when the price takes a temporary pause before resuming the prevailing trend, whether upward or downward. Traders use continuation patterns to identify opportunities to enter a trade in the direction of the trend once the pattern is completed. The following are the commonly used continuation patterns used by technical analysts:

- ◇ **Flags:** The flag formation resembles a parallelogram, where two trend lines run parallel to each other. During the formation of the flag, trading volume typically decreases and then increases again when the pattern breaks. These patterns are small rectangles that slope against the dominant trend and appear after a significant price movement. The flagpole represents the initial surge, while the flag signifies a period of consolidation. Consider a stock that has been rising steadily in price in the initial trend. Suddenly, it experiences a sharp and rapid increase, creating a steep upward line on the chart. This line is known as the flagpole, indicating strong buying momentum or positive news. After the sharp rise in the consolidated phase, the stock price starts to move sideways or slightly downward, forming a small rectangular shape. This is the flag, representing a consolidation period where the market takes a pause. During this phase, traders evaluate whether to continue buying or if the stock might be overvalued. The next phase will be the continuation of the trend. If the stock breaks out of the flag in the same direction as the original trend (upward in this case) after the consolidation phase, it suggests that the upward trend is likely to resume. This breakout often results in another sharp increase in the stock's price, mirroring the initial movement.
- ◇ **Triangle:** Triangles are created when price movements produce a series of descending highs and ascending lows. These patterns become visible on a chart when the descending highs are connected by a straight line and the ascending lows by another straight line. The lines formed are known as the upper trend line and the lower trend line, respectively. Triangles can represent a consolidation phase before a price breakout.
- ◇ **Pennants:** The pennant formation resembles a symmetrical triangle and forms after a strong price movement. The upper trendline, which connects the peaks, slopes downward, while the lower trendline, connecting the troughs, slopes upward. This pattern usually appears during a strong upward or downward trend and suggests that the existing trend is likely to continue. The price breakout from the pennant is often accompanied by increased trading volume.

Using these charts and patterns, various theories have been formulated to study the behaviour of the stock market and thereby indulge in informed decision-making.

3.1.6 Technical Indicators

Since stock prices are subject to frequent fluctuations, investors often find it difficult to distinguish temporary price movements from the actual market trend. To overcome this, analysts employ some mathematical indicators and market indicators, which smooth out price fluctuations, providing a clearer picture of a stock's overall direction.

Some of the mathematical indicators include:

I Moving averages: Moving averages are a fundamental tool in technical analysis used to smooth out price fluctuations and identify the underlying trend of a stock. It helps to identify whether the trend in the stock market is upward, downward, or sideways.

Simple moving average and exponential moving average are the two types of moving averages. A simple moving average (SMA) is calculated by taking the average of a set of prices over a certain number of past days. An exponential moving average (EMA), on the other hand, is a weighted average that places more emphasis on recent prices, allowing it to respond more quickly to new information.

II. Oscillators: Oscillators are mathematical indicators which fluctuate around a reference point. They are based on closing price data, which helps to spot when a stock might be overbought or oversold and to predict potential trend reversals. Rate of Change Indicator (ROC), Relative Strength Index (RSI), Moving Average Convergence and Divergence (MACD) are some oscillators.

While mathematical indicators are primarily used to analyse the behaviour of individual stocks by identifying trends, momentum, and possible reversal points, market indicators provide insights into the overall condition and direction of the stock market. These indicators assess the combined performance of a large number of stocks to gauge market trends, investor sentiment, and potential changes in market direction. Some of the commonly used market indicators are:

i. Breadth of the market: The breadth of the market makes comparison between the number of stocks making new highs versus new lows or the ratio of advancing to declining stocks. They provide insight into the strength or weakness of the market. Each day's difference between the number of shares which advanced and declined will be calculated and summed up. The index thus obtained can be plotted on a line graph to be compared with the market index which depicts the direction of the market.

ii. Market sentiment - It is a measure of investor optimism or pessimism about the future of the stock market. It is measured through various methods such as investor surveys (directly ask participants about their market outlook), and option sentiment (analyses the behaviour of options traders).

iii. Volume indicators- Volume represents the number of shares traded within a specific time frame. To measure market strength and potential trend changes, analysts employ volume indicators like the On-Balance Volume (OBV). High volume on up days can indicate strong buying interest, while high volume on down days can indicate strong selling pressure.

In addition to these market indicators, measures such as short selling, the odd-lot index, and the mutual fund cash ratio are also used to assess market conditions. These indicators help investors understand prevailing market sentiment and provide clues about potential future movements in stock prices and overall market trends.



3.1.7 Limitations of Technical Analysis

While technical analysis provides valuable insights into market behaviour and helps in determining entry and exit points, it is not without limitations.

1. The effectiveness of technical analysis depends largely on historical data and market psychology, which may not always accurately predict future market movements.
2. It is often difficult to identify the patterns underlying stock price movements.
3. It is not easy to interpret the meaning of patterns and their likely impact on future price movements.
4. Technical analysis often ignores fundamental factors such as a company's financial performance, economic conditions, and industry developments that can significantly influence stock prices.

Due to these inherent limitations, technical analysis should not be relied upon as the sole basis for investment decisions and is often used in combination with fundamental analysis to achieve more reliable results.

Recap

- ◇ Technical analysis is a method of forecasting future price movements based on historical price and volume data.
- ◇ It assumes that market prices reflect all available information and that price movements follow identifiable trends and patterns.
- ◇ The major principles of technical analysis include trend analysis, market action discounts everything, and history tends to repeat itself.
- ◇ Dow Theory provides the foundation for understanding market trends and their classifications.
- ◇ Chart patterns such as support and resistance, head and shoulders, double tops and bottoms, and triangles help identify trend continuations and reversals.
- ◇ Technical indicators, including moving averages, RSI, MACD, and market breadth indicators, assist investors in assessing market momentum and sentiment.
- ◇ Market indicators provide insights into the overall market condition, while individual stock indicators focus on the behaviour of specific securities.
- ◇ Technical analysis helps investors determine suitable entry and exit points and supports short-term trading decisions.

- ◇ However, it has limitations such as dependence on historical data, subjective interpretation, and inability to fully account for fundamental and unexpected market factors.
- ◇ Therefore, technical analysis is most effective when used alongside fundamental analysis for making well-informed investment decisions.

Objective Questions

1. Who developed the Dow theory?
2. What is the basic assumption of technical analysis?
3. What does a Head and Shoulders pattern indicate?
4. What is market breadth?
5. The purpose of technical indicators is to-
6. The principle 'history repeats itself' imply?
7. Does technical analysis consider a company's financial performance?
8. What is one major limitation of technical analysis?

Answers

1. Charles H Dow
2. Market prices reflect all available information.
3. A trend reversal.
4. A measure of the number of advancing and declining stocks in the market.
5. To identify trends, momentum, and potential turning points.
6. Past market patterns tend to recur in the future.
7. No, it primarily focuses on price and volume movements.
8. It relies heavily on historical data



Self-Assessment Questions

1. What is technical analysis?
2. Explain Dow theory?
3. What are price charts? Describe the different types of price charts used by technical analysts.
4. “The Eliot wave theory is based on the principle that action is followed by reaction” Justify
5. Write a short note on
 - a. Support and Resistance
 - b. Trend reversals
 - c. Flags and Pennants
6. What do you mean by oscillators?
7. What are the limitations of technical analysis?

Assignments

1. Compare the price movements of two companies from the same industry over a period of six months and conclude.
2. Explain the concept of technical analysis and discuss its significance in investment decision-making.
3. Critically evaluate the advantages and limitations of technical analysis.

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Unit 2

Efficient Market Theory

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ explain the concept and assumptions of the Random Walk Hypothesis
- ◇ describe the meaning and significance of the Efficient Market Hypothesis (EMH)
- ◇ distinguish between the weak, semi-strong, and strong forms of market efficiency
- ◇ discuss the various empirical tests used to examine different forms of market efficiency

Prerequisite

Ravi and Anu were discussing how to make money in the stock market. Ravi believed that by studying past stock prices, he could predict future movements and earn higher profits. Anu disagreed and argued that stock prices change because of new information, such as company announcements or economic events, which arrive unexpectedly. Therefore, she felt that future price movements could not be accurately predicted.

Their finance teacher explained that Anu's view is known as the Random Walk Hypothesis, which states that stock prices move randomly as new information reaches the market. He further introduced the Efficient Market Hypothesis (EMH), which suggests that stock prices quickly reflect available information, making it difficult for investors to consistently earn abnormal returns. EMH is classified into weak, semi-strong, and strong forms based on the type of information reflected in prices, and researchers use empirical tests to examine the validity of these forms of market efficiency.

Keywords

Random Walk, Efficient Market Hypothesis, forms of market efficiency

Discussion

3.2.1 Random Walk Theory

The Random Walk Theory explains stock price movements by stating that changes in stock prices occur only when new information about the economy, industry, or a company becomes available. When such information reaches the market, investors react immediately, causing stock prices to adjust to a new level. Since all known information is already reflected in the current market price, future price changes depend solely on new and unexpected information.

According to this theory, stock price movements are independent of one another. Each price change is caused by a different piece of new information and is not influenced by previous price movements. Therefore, past stock prices cannot be used to accurately predict future prices.

The theory assumes that information is rapidly and widely disseminated among investors, enabling stock prices to adjust quickly and efficiently. As a result, the current market price of a security fully reflects all available information at any given time.

Because of this assumption of efficient and competitive markets, the Random Walk Theory became closely associated with the Efficient Market Hypothesis (EMH). Both suggest that it is difficult for investors to consistently earn abnormal returns by analyzing past price patterns, as stock prices already incorporate all publicly available information.

Thus, the random walk theory is based on the hypothesis that the stock markets are efficient. Hence, this theory later came to be known as the efficient market hypothesis (EMH) or the efficient market model.

3.2.2 Efficient Market Hypothesis (EMH)

The Efficient Market Hypothesis (EMH) states that capital markets are highly efficient in processing and reflecting information. In an efficient market, security prices always reflect their true or intrinsic values because all available information is quickly incorporated into prices. As a result, most securities are fairly priced at any point in time.

According to Elton and Gruber, an efficient market is one in which security prices fully reflect all available information. Similarly, Eugene Fama defined an efficient market as one where prices instantly adjust to new information, ensuring that current prices represent the best estimate of a security's value. The main focus of the EMH is the



speed with which information is reflected in security prices. Technical analysts argue that information is incorporated gradually into stock prices. Therefore, they believe that studying past price movements and identifying patterns can help investors earn higher returns.

Fundamental analysts, on the other hand, believe that investors require time to evaluate new information. During this adjustment period, security prices may fluctuate before reaching their correct values. They argue that investors with superior analytical skills can identify mispriced securities and earn excess returns.

However, the Efficient Market Hypothesis rejects both views. It argues that new information is rapidly processed by market participants and immediately reflected in security prices. Consequently, neither technical analysis nor fundamental analysis can consistently generate returns above the market average, since all available information is already incorporated into current prices.

3.2.3 Forms of Market Efficiency

The theory explains three forms of market efficiency. The following are the three forms:

i. Weak form: The weak form of market efficiency directly contradicts the technical analysis by emphasizing that stock prices cannot be predicted by studying the past share price movements. The argument put in favour of this statement is that stock prices can only be influenced by new information, since all existing information is already reflected in stock prices. Serial correlation tests, run tests, filter tests, and distribution patterns can be used to test the weak form of market efficiency.

ii. Semi-strong form: The semi-strong form of market efficiency directly contradicts the fundamental analysis by stating that all the publicly available information, such as press releases, annual reports, announcements and so forth has already been reflected in the prices of securities in the stock market. Hence, fundamental analysts cannot earn excess returns since the current stock price will be the same as the intrinsic value of securities. Residual analysis is a tool to test the semi-strong form of market efficiency.

iii. Strong form: The strong form of market efficiency states that the market is so efficient that not only the past and the publicly available information, but also the private or the inside information about the company is also reflected in the stock prices. Private or inside information are that information that is not available to the public. Instead, such information can be accessed only by directors, key managerial personnel, mutual fund agencies, or other professional analysts. Even investors with insider information cannot achieve consistently higher returns, as prices already incorporate all possible information.

3.2.4 Empirical Tests for Different Forms of Market Efficiency

The Efficient Market Hypothesis (EMH) classifies market efficiency into weak, semi-strong, and strong forms. To determine whether markets are truly efficient, researchers

conduct empirical tests that examine how security prices respond to different types of information. These tests help assess whether investors can earn abnormal returns using past price data, publicly available information, or private information. The results provide evidence regarding the validity of the different forms of market efficiency.

3.2.4.1 Empirical Tests of Weak Form Efficiency

The weak form of the Efficient Market Hypothesis (EMH) states that current stock prices already reflect all information contained in past price movements and trading data. Therefore, future price changes occur only because of new information and are independent of previous price patterns.

As a result, analyzing historical prices cannot help investors consistently earn abnormal returns. Since technical analysis is based on studying past price trends and chart patterns to predict future movements, the weak form of EMH argues that such analysis is ineffective in generating excess profits. Thus, the weak form of market efficiency rejects the usefulness of technical analysis as a reliable investment strategy.

Two methods are commonly used to test the weak form of the Efficient Market Hypothesis (EMH). The first method examines whether stock price changes exhibit any statistically significant patterns that can be used to predict future prices. The second method evaluates whether investors can earn abnormal profits by applying short-term trading strategies based on past price movements.

1. Serial correlation test

The Serial Correlation Test is used to examine whether stock price changes are independent of one another, as suggested by the weak form of the Efficient Market Hypothesis (EMH). It measures the relationship between price changes in one period and those in another period using a correlation coefficient. The coefficient ranges **from +1 to -1**. A positive value indicates a direct relationship, a negative value indicates an inverse relationship, and a value close to **zero** indicates no relationship. Therefore, if the correlation coefficient is close to zero, stock price changes are considered to be random and independent of past price movements.

2. Run Test

The Run Test is another method used to determine whether stock price movements are random. Unlike the serial correlation test, it ignores the magnitude of price changes and considers only the direction of movement. A price increase is represented by (+), a decrease by (-), and no change by (0). A sequence of identical symbols occurring consecutively is called a run. For example, in the sequence ---++0---++++, there are five runs: a run of three negatives, a run of two positives, a run of one zero, a run of three negatives, and a run of four positives.

In this test, the actual number of runs observed in a stock price series is compared with the number of runs expected in a randomly generated series. If there is no significant difference between the two, the stock price movements are considered random, supporting the weak form of market efficiency.



3. Filter Tests

If stock price movements are truly random, it should be difficult to create a mechanical trading strategy that consistently earns superior returns. Filter tests are used to examine whether specific trading rules based on past price movements can generate abnormal profits. The basic idea behind a filter rule is that stock prices usually fluctuate within a normal range around their fair value. When new information enters the market, the price may move beyond this range and establish a new equilibrium level. If favourable news is received, the price rises to a higher level; if unfavourable news is received, the price falls to a lower level.

Technicians set up trading strategies based on such patterns to earn excess returns. The strategy is called a filter rule. The filter rule is usually stated in the following way: Purchase the stock when it rises by x per cent from the previous low and sell it when it declines by x per cent from the subsequent high. The filters may range from 1 per cent to 50 per cent or more.

The performance of this active trading strategy is compared with a passive buy-and-hold strategy. If filter rules consistently produce higher returns, it would indicate that past price patterns can be used to predict future movements, thereby contradicting the weak form of the Efficient Market Hypothesis (EMH). However, if filter rules do not outperform the buy-and-hold strategy, the weak form of EMH is supported.

Example:

Assume an investor follows a 5% filter rule.

- ◇ The stock price falls to a low of ₹100.
- ◇ According to the filter rule, the investor will buy the stock only if the price rises by 5% from this low.
- ◇ A 5% increase from ₹100 is ₹105.

Buy Decision

- ◇ Low price = ₹100
- ◇ Buy when price reaches = ₹105

Suppose the stock price rises to ₹105. The investor buys the stock.

Later, the stock reaches a high of ₹120.

Sell Decision

The investor will sell when the price falls by 5% from the high of ₹120.

- ◇ 5% of ₹120 = ₹6
- ◇ Sell price = ₹120 – ₹6 = ₹114

If the stock price declines to ₹114, the investor sells the stock.

Summary of actions

Action	Price
Previous Low	₹100
Buy at 5% rise	₹105
Subsequent High	₹120
Sell at 5% fall	₹114

The filter test examines whether repeatedly following such a rule can generate higher returns than a simple buy-and-hold strategy. If it cannot, the results support the weak form of the Efficient Market Hypothesis (EMH).

4. Distribution Patterns

According to statistics, random events tend to follow a normal distribution. Therefore, if stock price changes are truly random, their distribution should also approximate a normal distribution. By examining the distribution of stock price changes, researchers can assess whether price movements are random and consistent with the weak form of market efficiency.

Empirical Evidence on Weak Form Efficiency

During the 1960s, the Efficient Market Hypothesis was commonly referred to as the Random Walk Theory. Researchers conducted numerous studies to determine whether stock prices followed a random walk, meaning that future price movements could not be predicted from past prices.

Two influential studies published in 1959 by Roberts and Osborne helped popularize the theory. Roberts compared movements in the Dow Jones Industrial Average with a series generated by a random process and found that both exhibited similar patterns. Osborne observed that stock price changes closely resembled Brownian motion, the random movement of particles suspended in a liquid. Both studies concluded that stock price movements were largely random and that past prices had little predictive value.

Many researchers subsequently applied serial correlation tests to examine whether stock price changes were related over time. Studies by Moore, Fama, and Hagerman and Richmond found very low correlation coefficients that were not significantly different from zero. These results indicated little or no dependence between successive price changes and supported the Random Walk Theory.

Fama also conducted run tests and obtained similar results, further supporting the view that stock price movements are random. Similar studies in stock markets around the world produced comparable findings.

Researchers also tested the effectiveness of filter rules. Studies conducted by Alexander, Fama and Blume, Dryden, and Praetz compared filter-based trading strategies with buy-and-hold strategies. The findings showed that filter strategies did not consistently generate superior returns.



Overall, empirical evidence has shown little or no predictable pattern in stock price movements. These findings strongly support the weak form of the Efficient Market Hypothesis, which states that past price information cannot be used to consistently earn abnormal returns.

3.2.4.2 Empirical Tests of Semi-strong Form Efficiency

The semi-strong form of the Efficient Market Hypothesis (EMH) states that current stock prices reflect not only all information contained in past price movements but also all publicly available information about a company. Such information includes annual reports, company announcements, press releases, dividend declarations, stock splits, and other publicly disclosed data. According to this hypothesis, stock prices adjust immediately when new information becomes available, fully incorporating its effects into market prices.

An important implication of the semi-strong form is that investors cannot consistently earn abnormal profits through fundamental analysis. Since stock prices react rapidly to newly released information, there is no opportunity for fundamental analysts to exploit a time lag between the release of information and its impact on stock prices. Therefore, the semi-strong form challenges the usefulness of fundamental analysis as a means of achieving superior returns.

Semi-strong form tests examine whether security prices fully and quickly reflect publicly available information. These tests seek to determine whether stock prices respond accurately and promptly to new information. If prices fail to adjust efficiently, investors and analysts may be able to earn excess returns by acting on the information before it is completely reflected in market prices. Consequently, these tests also investigate whether publicly available information can be used to achieve superior investment performance.

Because public information is vast and diverse, researchers have conducted semi-strong form tests using many different types of information. Much of the methodology used in these studies was developed by Eugene Fama, Lawrence Fisher, Michael Jensen, and Richard Roll. Their research was among the first to directly test the semi-strong form of market efficiency. Since then, several improvements and refinements have been made to the testing procedures.

The typical approach used in these studies is to identify a specific economic event and assess its impact on stock prices. This impact is measured by calculating the difference between the actual return earned by a security and its expected return. The expected return is usually estimated using the Market Model, also known as the Single Index Model, developed by William Sharpe. The model provides a basis for determining the expected return against which actual performance can be compared.

The model used for estimating expected returns is the following:

$$R_i = a_i + b_i R_m + e_i$$

R_i = Return on security i ,

R_m = Return on market index

a_i and b_i = Constants

e_i = Random error

This approach is commonly referred to as **residual analysis**. The difference between the actual return and the expected return represents the abnormal or excess return earned on a security. When this excess return is close to zero following a public announcement, it indicates that the market has adjusted rapidly to the new information and that stock prices have moved to their new equilibrium level almost immediately. The absence of significant abnormal returns therefore provides support for the semi-strong form of the Efficient Market Hypothesis (EMH).

Several empirical studies have examined the impact of capitalization-related events, such as stock splits and stock dividends, on share prices. Notable research conducted by Eugene Fama, Lawrence Fisher, Michael Jensen, and Richard Roll in the United States, Finn in Canada, and Firth in the United Kingdom found that stock prices adjusted both quickly and accurately to the release of new information. These findings suggest that markets efficiently incorporate publicly available information into security prices.

Similarly, studies by Pettit and Watts investigated the market response to dividend announcements. Their research revealed that the adjustment in stock prices was completed almost immediately after the announcement, indicating that investors rapidly evaluated and incorporated the information into market prices. These results provide further evidence in support of the semi-strong form of market efficiency.

3.2.4.3 Empirical Tests of strong Form Efficiency

The strong form of the Efficient Market Hypothesis (EMH) represents the highest level of market efficiency. It asserts that current security prices fully reflect all available information, including both publicly accessible information and private or insider information. Under this form of market efficiency, no investor can consistently earn abnormal returns by using any type of information, regardless of whether it is publicly known or privately held.

Senior executives, directors, and other key managerial personnel often possess information about a company that is not yet available to the general public. Such information is referred to as insider information. Similarly, mutual funds, institutional investors, and professional analysts with extensive research capabilities may acquire valuable private information through their own investigations and analyses. Since this information is not widely available to the investing public, it is considered private information.

The strong form hypothesis maintains that even these exclusive sources of information are already incorporated into security prices. Consequently, neither insiders nor professional investors with access to private information should be able to consistently achieve superior investment returns. This assumption represents the most rigorous and restrictive version of market efficiency.



Strong-form efficiency is generally evaluated through two categories of tests.

1. The first category examines whether individuals with access to insider information are able to use that information to earn abnormal or excess returns. If such individuals consistently generate superior profits, it would indicate a violation of strong-form market efficiency.
2. The second category of tests focuses on the performance of mutual funds and the investment recommendations provided by professional analysts. These studies investigate whether institutional investors and analysts are capable of achieving superior returns through the use of privately generated information and extensive research efforts. If they are unable to consistently outperform the market, the findings would support the validity of the strong form of the Efficient Market Hypothesis.

Studies by Jaffe, Lorie, and Niederhoffer found that individuals with access to insider information were able to earn abnormal returns. These findings suggest that insider information can be used profitably, indicating that the strong form of the Efficient Market Hypothesis (EMH) does not hold with respect to insider information.

In contrast, research on mutual funds and investment analysts has generally shown that they are unable to consistently outperform the market. Studies in both the United States and the United Kingdom found that mutual funds and unit trusts did not generate returns superior to comparable market portfolios after adjusting for risk. Similarly, investment analysts' recommendations have not consistently produced above-average returns.

The key findings of strong-form EMH studies are:

1. Insider information can generate excess returns.
2. Mutual funds and investment analysts cannot consistently earn superior returns using private research.

Thus, the strong-form EMH is invalid with respect to insider information but receives support regarding other forms of private information.

Recap

- ◇ The Random Walk Theory states that stock prices change only in response to new information, making future price movements unpredictable from past price data.
- ◇ The Efficient Market Hypothesis (EMH) argues that security prices quickly and fully reflect all available information, making it difficult to earn abnormal returns consistently.
- ◇ To explain how information is reflected in security prices, the Efficient Market Hypothesis categorizes market efficiency into weak, semi-strong, and strong forms.

- ◇ Weak-form efficiency suggests that current stock prices already incorporate all past market information; therefore, technical analysis cannot consistently generate superior returns.
- ◇ Semi-strong form efficiency states that stock prices reflect all publicly available information, implying that fundamental analysis cannot consistently produce excess returns.
- ◇ Strong-form efficiency proposes that stock prices incorporate all information, including private and insider information, leaving no scope for investors to consistently outperform the market.
- ◇ Empirical studies largely support weak-form efficiency, as stock price movements are largely random and independent of past trends.
- ◇ Research on semi-strong efficiency shows that stock prices adjust rapidly to public announcements, supporting the view that markets efficiently process public information.
- ◇ Evidence on strong-form efficiency is mixed: insiders have been found to earn abnormal returns using private information, while mutual funds and investment analysts generally fail to consistently outperform the market.

Objective Questions

1. What does the Random Walk Theory state
2. Who is regarded as the father of the Efficient Market Hypothesis?
3. Which type of analysis is rejected by the weak form of EMH?
4. What is the main test used for semi-strong form efficiency?
5. What is insider information?
6. What is the relationship between Random Walk Theory and EMH?
7. Name any one test used to examine weak-form efficiency?
8. What does the Run Test measure?



Answers

1. Stock price changes are random and unpredictable.
2. Eugene Fama
3. Technical Analysis
4. Residual Analysis.
5. Information not available to the general public.
6. Random Walk Theory forms the basis of EMH.
7. Serial Correlation Test.
8. Whether stock price movements are random

Self-Assessment Questions

1. What is the Random Walk Theory?
2. Define the Efficient Market Hypothesis (EMH).
3. Name the three forms of market efficiency.
4. What is meant by insider information?
5. Explain why the weak form of EMH rejects technical analysis.
6. How would you use a run test to examine stock price randomness?
7. Describe the relationship between Random Walk Theory and EMH.
8. Compare the weak, semi-strong, and strong forms of market efficiency.
9. Do you agree that fundamental analysis cannot generate superior returns in an efficient market? Justify your answer.

Assignments

1. Explain the Random Walk Theory and discuss its significance in understanding stock price movements.
2. Critically examine the relationship between Random Walk Theory and the Efficient Market Hypothesis.
3. Conduct a simple run test using a series of daily stock price movements and interpret the results.

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4

BLOCK

Risk and Return

Unit

Risk and Return Concepts

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ Explain the concept of risk and its significance in investment decisions.
- ◇ Distinguish between different types of investment risks.
- ◇ Differentiate between systematic risk and unsystematic risk with suitable examples.

Prerequisite

Investment decisions are always made with the expectation of earning future returns. Future outcomes are uncertain because various economic, financial, business, and market-related factors continuously influence the value of investments. This uncertainty is known as risk. The level of risk varies among different investment avenues, and recognising these differences helps in evaluating investment opportunities more effectively. Risk does not necessarily imply loss; rather, it indicates the possibility that actual returns may differ from expected returns. This variation may result in gains or losses depending on changing circumstances.

Investment risk can arise from several sources, including changes in interest rates, inflation, economic conditions, government policies, market movements, company performance, technological developments, and global events. These risks are broadly classified into systematic and unsystematic risk. Systematic risk affects the entire market and cannot be eliminated through diversification because it originates from economy-wide factors. In contrast, unsystematic risk is associated with a particular company or industry and can be minimised through diversification. A clear understanding of these cate-

gories helps in identifying the origin of investment risk and selecting appropriate strategies to manage it. Knowledge of risk concepts forms the foundation for understanding investment analysis, portfolio management, and financial decision-making. It also provides the basis for evaluating the relationship between risk and return, enabling informed decisions when selecting and managing investment portfolios.

Keywords

Risk, Return, Systematic Risk, Unsystematic Risk

Discussion

4.1.1. Introduction

Investment is the process of allocating money or other financial resources to assets with the expectation of generating future income or capital appreciation. Individuals choose different investment avenues depending on their financial objectives, risk tolerance, expected returns, liquidity requirements, and investment period. As these factors vary among investors, investment decisions also differ from one individual to another. Common investment options include bank deposits, bonds, mutual funds, shares, real estate, and government securities.

Risk and return are the two fundamental concepts that influence every investment decision. Risk refers to the possibility that the actual return from an investment may differ from the expected return due to uncertainties in economic and market conditions. Return is the reward earned from an investment, either in the form of regular income such as interest or dividends, or through an increase in the value of the investment over time. Generally, investments with lower risk offer relatively lower returns, while investments involving higher risk provide the potential for higher returns. This relationship between risk and return forms the basis of investment analysis and portfolio management.

Every investment carries some degree of risk, although the level of risk varies across different investment alternatives. For example, bank fixed deposits are considered relatively safe because they provide stable and predictable returns, whereas equity shares are exposed to market fluctuations and therefore involve greater uncertainty. Investors expect higher returns from such investments as compensation for assuming additional risk. A clear understanding of the relationship between risk and return enables investors to evaluate investment alternatives effectively and make informed decisions that align with their financial goals and risk-bearing capacity.

4.1.2. Investment Objectives

1. Adequate Return

The primary objective of investment is to earn a satisfactory return on the amount invested. Investors expect their investments to generate regular income or capital appreciation over time. The return should be sufficient to compensate for the risk undertaken.

2. Less Risk

Investors generally prefer investment options that involve the lowest possible level of risk. Lower risk helps to reduce the chances of financial loss and protects the invested capital. Proper diversification and careful investment planning help to minimise risk.

3. Safety of Funds

Safety of principal is one of the most important objectives of investment. Investors seek investment avenues where the original amount invested remains secure. Government securities and bank deposits are often preferred for their high level of safety.

4. Growth of Funds

Investments should help to increase the value of money over a period of time. Growth is achieved through capital appreciation and reinvestment of earnings. Long-term investments generally provide better opportunities for wealth creation.

5. Liquidity

Liquidity refers to the ease with which an investment can be converted into cash without significant loss in value. Investors prefer assets that provide quick access to funds during emergencies. Highly liquid investments improve financial flexibility.

6. Tax Benefits

Many investment options provide tax deductions, exemptions, or concessions under tax laws. These benefits help investors to reduce their overall tax liability while building wealth. Tax-saving investments improve the effective return on investment.

7. Transferability

Certain investments can be easily transferred from one person to another through sale or legal transfer. High transferability increases the flexibility and market value of an investment. Securities traded on stock exchanges generally possess this feature.

8. Hedging Against Inflation

Investments should protect the purchasing power of money against rising prices. Inflation reduces the real value of money over time if investments do not generate adequate returns. Investing in growth-oriented assets helps to offset the effects of inflation.



9. Meeting Social and Esteem Needs

Some investors choose investments that contribute to social welfare or reflect their personal values and status. Investments in socially responsible companies or charitable institutions provide both financial and personal satisfaction. Such investments fulfil emotional, ethical, and esteem-related objectives.

4.1.3. Characteristics of Investment

1. Risk

Risk is the possibility that the actual return may differ from the expected return. Every investment carries some degree of uncertainty due to market and economic factors. Investors should assess the level of risk before making investment decisions.

2. Expected Return

Expected return is the anticipated income or profit from an investment. It may consist of regular income, capital gains, or both. Higher expected returns are generally associated with higher levels of risk.

3. Liquidity

Liquidity indicates how quickly an investment can be converted into cash. Investments with higher liquidity are more useful during financial emergencies. Cash, savings accounts, and marketable securities are examples of highly liquid assets.

4. Marketability

Marketability refers to the ease with which an investment can be bought or sold in the market. Highly marketable investments usually have active buyers and sellers. Better marketability enables investors to dispose of investments quickly.

5. Legality

Every investment should comply with the applicable laws and regulations of the country. Legal investments provide protection to investors and reduce the chances of fraud. Investors should verify the legal status of investment schemes before investing.

6. Tax Aspects

Different investments are subject to different tax treatments. Tax provisions affect the overall profitability and net return of an investment. Investors should evaluate the tax implications before making investment decisions.

7. Purchasing Power in Future

A good investment should preserve or increase the purchasing power of money over time. Inflation reduces the real value of money if returns are inadequate. Investments that generate returns above the inflation rate help maintain future purchasing power.

4.1.4. Benefits of Investments

1. Income

Investments generate regular income through interest, dividends, rent, or other earnings. This income can support day-to-day expenses or future financial needs. It also improves the overall financial stability of the investor.

2. Less Risk Aspect

Well-planned investments help reduce financial risk through diversification and proper asset allocation. Choosing suitable investment instruments minimises the possibility of significant losses. Balanced investment strategies provide greater financial security.

3. Capital Growth

Investments increase wealth through appreciation in asset value over time. Long-term investments generally offer better opportunities for capital growth. This helps investors achieve major financial objectives.

4. Financial Security

Investments create a financial cushion for future uncertainties and emergencies. They provide funds for retirement, education, healthcare, and other important life events. Financial security improves confidence and economic stability.

5. Generation of Wealth

Regular investment combined with compound growth helps build substantial wealth over time. Wealth creation enables individuals to improve their standard of living and financial independence. Long-term investing is one of the most effective methods of wealth generation.

6. Flexibility

Investors can choose from a wide variety of investment options according to their financial goals and risk tolerance. Investments can also be modified as financial needs change over time. This flexibility allows better financial planning.

7. Attaining Financial Goals

Investments help individuals achieve short-term and long-term financial objectives. Goals such as purchasing a house, funding higher education, or planning retirement become easier through systematic investment. Proper investment planning ensures timely achievement of these goals.

8. Tax Benefits

Several investment schemes provide tax-saving opportunities under government regulations. These benefits reduce taxable income and increase the effective return on investment. Tax-efficient investing improves overall financial planning.



9. Security of Funds

Investing in reliable financial instruments safeguards the principal amount from undue financial risk. Secure investment options offer stability and peace of mind to investors. Capital preservation remains a key benefit of prudent investing.

10. Confidentiality

Many financial institutions uphold the privacy and confidentiality of investors' financial information. The confidential handling of investment records protects investors from unauthorised disclosure, thereby enhancing trust and confidence in the financial system.

4.1.5. Concept of Risk

Risk is defined as the effect of uncertainty on objectives. Conceptually, risk is a situation or event where something of value is at stake and the outcome is uncertain. Situations are considered risky if they involve significant deviations from expectations. Every investment encompasses both return and risk. While investors anticipate earning a return from their investments, there is always a possibility that the actual return may differ from what was expected. This uncertainty is known as risk. In finance, risk refers not only to the possibility of loss but also to the uncertainty associated with future investment outcomes. Therefore, every investment decision requires balancing the expected return against the level of risk involved.

When an individual makes an investment, the primary objective is to earn a future return. However, due to uncertain future economic and market conditions, the actual return earned from an investment may differ from the initial expectation. The return an investor anticipates before making an investment is referred to as the expected return, while the return actually received at the end of the investment period is known as the realised return.

Risk exists whenever there is uncertainty regarding investment returns. It arises when the realised return differs from the expected return. If the actual return precisely matches the expected return, the investment is considered risk-free. However, when there is a possibility that the realised return may be either higher or lower than the expected return, the investment is said to involve risk. Therefore, risk can be defined as the possibility of variation between the expected return and the realised return.

Different investment alternatives carry varying levels of risk. Investments that generate stable and predictable returns are generally classified as low-risk. For instance, government securities typically offer relatively stable returns and are therefore considered less risky. In contrast, investments such as equity shares are exposed to frequent price fluctuations resulting from changes in market and economic conditions. Consequently, they are regarded as high-risk investments. Before selecting any investment alternative, investors should carefully assess both the expected return and the level of risk associated with the investment to ensure their decisions align with their financial objectives and risk-bearing capacity.

4.1.6. Elements of Risk

The total risk associated with an investment stems from the variability or fluctuations in the returns it generates. As investment returns are influenced by a variety of economic and business factors, they may not remain constant over time. These factors, which cause uncertainty in investment returns, are known as elements of risk. Understanding these elements helps investors identify the sources of risk and make informed investment decisions. For financial securities such as equity shares, preference shares, bonds, and debentures, the factors responsible for changes in returns can be broadly classified into two categories: systematic risk and unsystematic risk.

The first category comprises external or market-wide factors that affect the overall economy and influence numerous companies simultaneously. These factors include changes in interest rates, inflation, government policies, economic growth, political developments, and market conditions. As these factors originate outside the control of individual companies, they cannot be eliminated through managerial decisions or diversification. The risk arising from these external influences is known as systematic risk or market risk. Although the extent of its impact may vary among industries and companies, systematic risk affects almost all investments in the financial market.

The second category encompasses company-specific or internal factors that influence the performance of individual firms. These factors include management efficiency, labour relations, production costs, financial structure, technological changes, marketing strategies, and operational decisions. Unlike systematic risk, these risks are largely specific to a particular company or industry and can be reduced through proper diversification of investments and effective management practices. The risk arising from these internal factors is known as unsystematic risk or specific risk.

The overall variability in the returns of a security represents its total risk. Therefore, total risk is the combined effect of both systematic and unsystematic risk. It can be expressed as:

$$\text{Total Risk} = \text{Systematic Risk} + \text{Unsystematic Risk}$$

A clear understanding of these two elements of risk enables investors to evaluate investment alternatives more effectively, construct diversified portfolios, and balance risk with expected returns.

4.1.7. Systematic Risk

Systematic risk is the variability in security returns caused by changes in the economy or the market. It refers to the risk that arises from changes in the overall economic, political, social, and financial environment. These factors influence the entire economy and affect almost all companies, industries, and financial securities, although the degree of impact may vary from one sector to another. Since systematic risk originates from external forces that are beyond the control of individual firms, it cannot be eliminated through diversification. Even a well-diversified investment portfolio remains exposed to systematic risk because market-wide events affect all investments to some extent.



Systematic risk is also known as market risk or non-diversifiable risk. It stems from broad economic and market conditions rather than factors specific to a single company. Major sources of systematic risk include economic recessions, inflation, changes in interest rates, fluctuations in foreign exchange rates, political instability, shifts in government policies, taxation, and natural or global events that influence financial markets. For example, during periods of economic slowdown, business profits generally decline, which reduces investor confidence and causes share prices across the market to fall. Since these events affect a large number of companies simultaneously, investors cannot completely avoid systematic risk.

Systematic risk is commonly classified into three major categories: interest rate risk, market risk and purchasing power (inflation) risk.

4.1.7.1. Interest Rate Risk

Interest rate risk is the possibility that changes in market interest rates will affect the value of financial securities, particularly fixed-income investments such as bonds, debentures and government securities. These securities generally carry a fixed rate of interest, known as the coupon rate, which remains unchanged throughout the life of the security. However, market interest rates are influenced by monetary policy, inflation and economic conditions, and therefore fluctuate over time.

There is an inverse relationship between market interest rates and the prices of fixed-income securities. When market interest rates increase, newly issued securities offer higher returns, making existing securities with lower coupon rates less attractive to investors. Consequently, the market prices of existing bonds decline. Conversely, when market interest rates fall, existing bonds carrying higher coupon rates become more valuable because they provide returns above the prevailing market rate. As a result, their market prices increase.

For example, assume a bond with a face value of ₹100 carries a coupon rate of 10%, providing annual interest of ₹10. If the prevailing market interest rate rises to 12.5%, investors will prefer newly issued securities offering the higher return. To remain competitive, the market price of the existing bond may decline to approximately ₹80, enabling a new investor to earn an effective yield of about 12.5%. This inverse relationship between bond prices and market interest rates is the fundamental characteristic of interest rate risk.

4.1.7.2. Market Risk

Market risk refers to the possibility of losses resulting from fluctuations in the prices of shares and other marketable securities due to changes in overall market conditions. Share prices constantly move upward and downward in response to economic developments, government policies, investor sentiment, corporate earnings and global events. These movements are reflected in stock market indices such as the BSE Sensex and the NSE Nifty, which indicate the general performance of the stock market.

Market risk is experienced during both bull and bear markets. A bull market is characterised by rising share prices, strong investor confidence, and favourable

economic conditions, whereas a bear market is marked by declining prices, weak investor sentiment, and slowing economic activity. As these movements affect most companies listed on the stock exchange, market risk cannot be eliminated simply by investing in different securities.

Various factors contribute to market risk, including changes in interest rates, inflation, economic growth, political developments, international events, and shifts in investor expectations. Although investors may analyse market trends and economic indicators to estimate future movements, accurately predicting short-term price fluctuations is extremely difficult. Therefore, market risk remains an unavoidable component of investing in financial markets.

4.1.7.3. Purchasing Power Risk

Purchasing power risk, commonly known as inflation risk, refers to the possibility that inflation will reduce the real value of investment returns. Inflation causes a general increase in the prices of goods and services over time, thereby reducing the purchasing power of money. Consequently, even when an investment generates a positive nominal return, the investor may experience a decline in real wealth if the rate of inflation exceeds the investment return.

Inflation affects almost every type of investment and is, therefore, considered a form of systematic risk. Investors must ensure that the returns earned on their investments are higher than the prevailing inflation rate so that the real value of their wealth is preserved or increased. Investments that provide returns below the inflation rate result in a loss of purchasing power because the income generated is insufficient to keep pace with rising prices.

For example, suppose an investment earns an annual return of 6%, while the inflation rate during the same period is 8%. Although the investment has generated a positive nominal return, the investor's real purchasing power has declined by approximately 2%. In other words, the investment income is not sufficient to offset the increase in the cost of living. For this reason, purchasing power risk is an important consideration, particularly for long-term investors whose objective is to protect and increase the real value of their investments over time.

4.1.8. Unsystematic Risk

Unsystematic risk, also known as specific risk, unique risk, or diversifiable risk, refers to the risk arising from factors specific to a particular company, industry, or business. Unlike systematic risk, which affects the entire market, unsystematic risk is confined to individual firms or sectors and does not influence all companies simultaneously. It results from internal factors such as managerial decisions, operational efficiency, financial policies, labour relations, production problems, technological changes, and business strategies. As these factors are largely under the control of a company's management, unsystematic risk can be reduced or even eliminated through effective managerial practices and proper diversification of investments.



For example, a labour strike in a manufacturing company, the resignation of key executives, a shortage of raw materials, or the failure of a new product may affect only that particular company without significantly impacting the overall stock market. Similarly, a technological breakthrough by one company or financial difficulties faced by another may influence only the firms concerned. Investors can reduce the impact of such risks by investing in the securities of different companies operating in various industries. If one investment performs poorly due to company-specific problems, the losses may be offset by better performance in other investments within the portfolio.

Unsystematic risk is broadly classified into two categories:

1. Business Risk
2. Financial Risk

4.1.8.1. Business Risk

Business risk refers to the possibility of fluctuations in a company's earnings due to factors associated with its normal business operations. Every business functions in a dynamic environment where changes in market conditions, customer preferences, production costs, competition, and government regulations can influence its profitability. Business risk exists irrespective of the method of financing adopted by the company. Even a company with no borrowed funds is exposed to business risk because it arises from the nature of the business itself, rather than its capital structure.

The profitability and growth of a company depend on its ability to produce goods or services efficiently and satisfy customer needs. Changes in consumer demand, the entry of new competitors, rising production costs, technological innovations, labour disputes, supply chain disruptions, inefficient management, and regulatory changes may reduce sales or increase operating expenses. Such developments can adversely affect the company's earnings, resulting in lower dividends and a reduced market value of its shares.

Business risk differs from one industry to another. For instance, companies operating in technology-intensive industries generally face greater uncertainty due to rapid technological changes, whereas firms producing essential consumer goods may experience relatively stable demand. Effective management, strategic planning, innovation, and efficient cost control play an important role in reducing business risk and maintaining long-term profitability.

Business risk can be classified into the following major categories:

4.1.8.2. Operating Risk

Operating risk arises from fluctuations in a company's operating income due to changes in sales volume, production costs, operating efficiency, or the level of fixed operating expenses. Companies with high fixed operating costs are generally exposed to greater operating risk because even a small decline in sales can significantly reduce operating profits. Poor production planning, inefficient utilisation of resources, supply chain interruptions, equipment failures, or rising input costs may also increase operating risk. Efficient production management and effective cost control help minimise this type of risk.

4.1.8.3. Market and Competitive Risk

Market and competitive risk stems from shifts in market conditions and competitive forces that influence demand for a company's products or services. Consumer preferences can evolve, new competitors may emerge, substitute products might become available, or existing competitors could adopt aggressive pricing and marketing strategies. Such developments can diminish a company's market share and profitability. Businesses in highly competitive sectors must continuously enhance product quality, customer service, and innovation to maintain competitiveness and mitigate market-related risks.

4.1.8.4. Technological Risk

Technological risk pertains to the potential for rapid technological advancements to render a company's products, production methods, or services obsolete. Continuous innovation is now essential in today's competitive business landscape. Companies that fail to embrace modern technologies risk losing their competitive advantage, leading to declining sales and profitability. This risk is particularly pronounced in industries such as information technology, electronics, telecommunications, and pharmaceuticals, where frequent technological changes significantly impact business performance. Regular investment in research, development, and technological upgrades helps organisations effectively manage this risk.

4.1.8.5. Regulatory Risk

Regulatory risk originates from changes in government policies, taxation, environmental regulations, labour laws, import-export policies, and other legal requirements that affect business operations. New regulations may increase production costs, necessitate additional compliance measures, or restrict certain business activities. Changes in tax laws, environmental standards, or industry-specific regulations can directly impact companies' profitability and operations. Businesses must continuously monitor regulatory developments and adapt their strategies to comply with evolving legal requirements while sustaining operational efficiency.

4.1.8.6. Financial Risk

Financial risk refers to the uncertainty arising from a company's financing decisions, specifically its use of borrowed funds within its capital structure. While debt financing allows a company to expand operations without issuing additional equity, it also creates fixed financial obligations in the form of interest payments and principal repayment. These obligations must be met regardless of whether the company generates sufficient profits. Consequently, excessive reliance on borrowed funds increases the probability of financial distress and exposes shareholders to greater uncertainty.

The level of financial risk is largely determined by a company's financial leverage, which measures the proportion of debt used to finance its assets. A company with a high debt-to-equity ratio carries greater financial risk because it faces higher interest and repayment commitments. During periods of declining profits, these fixed obliga-



tions reduce the earnings available to equity shareholders and heighten the likelihood of financial difficulties. Conversely, companies that primarily rely on equity financing generally experience lower financial risk as they are not burdened with compulsory interest payments.

The use of debt presents both advantages and disadvantages. If the return generated from business operations exceeds the cost of borrowed funds, debt financing can increase earnings per share (EPS) and enhance shareholder returns through the favourable effect of financial leverage. However, should operating profits fall below the interest cost, debt reduces the earnings available to equity shareholders, leading to a decline in EPS. Consequently, companies with high financial leverage experience greater fluctuations in shareholder earnings compared to those with lower levels of debt.

Financial risk is influenced by several factors, including the debt-equity ratio, interest burden, repayment obligations, cash flow position, creditworthiness, and the company's ability to generate stable operating profits. A company with strong cash flows and moderate debt is generally better positioned to meet its financial commitments than a highly leveraged company with uncertain earnings.

Since financial risk arises from the financing policies adopted by an individual company, it is considered a form of unsystematic risk. Unlike systematic risk, it can be substantially reduced through prudent financial management, maintaining an appropriate debt-equity balance, efficient cash flow planning, and avoiding excessive dependence on borrowed funds. Sound capital structure decisions enable companies to minimise financial risk while maintaining financial stability and enhancing shareholder value.

Recap

- ◇ Risk and return are closely related.
- ◇ Higher expected returns generally involve higher risk.
- ◇ Risks can be classified into systematic and unsystematic risks.
- ◇ Systematic risk affects the entire financial market.
- ◇ Diversification cannot eliminate systematic risk.
- ◇ Diversification helps reduce unsystematic risk.
- ◇ Company-specific events create unsystematic risk.

Objective Questions

1. Which type of risk affects the entire market?
2. Which type of risk can be reduced through diversification?
3. What is systematic risk also known as?
4. Which risk arises from company-specific factors?
5. Which risk cannot be eliminated through diversification?
6. What is the uncertainty of investment outcomes called?
7. Which risk arises from labour strikes within a company?
8. What is the expected reward from investment called?
9. Which concept explains spreading investments among different assets?

Answers

1. Systematic risk
2. Unsystematic risk.
3. Market risk.
4. Unsystematic risk.
5. Systematic risk.
6. Risk.
7. Unsystematic risk.
8. Return.
9. Diversification.

Self-Assessment Questions

1. How does risk influence investment decisions?
2. What are the major types of investment risk?
3. How can diversification reduce unsystematic risk?
4. Differentiate between systematic and unsystematic risks.
5. What are the major causes of unsystematic risk?
6. Why is risk analysis important before investing?
7. How does inflation affect investment returns?



Assignments

1. Compare the risks associated with equity shares and government securities.
2. Analyze how inflation has influenced investment returns over the past five years.
3. Compare the impact of interest rate changes on fixed deposits and bonds.

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Unit

Portfolio Risk and Return

Learning Outcomes

- ◇ After completing this unit, the learner will be able to;
- ◇ Explain the concept of portfolio analysis and its importance in investment decision-making.
- ◇ Understand the expected returns of a portfolio.
- ◇ Understand the calculation of Portfolio Risk and Return.
- ◇ Compare the impact of positive, negative, and zero correlation on portfolio risk.

Prerequisite

Investment decisions involve balancing the objectives of earning satisfactory returns while managing the risks associated with uncertain market conditions. Since the future performance of individual securities cannot be predicted with complete accuracy, investors often combine different investment instruments instead of relying on a single security. This collection of investments is known as a portfolio. The process of examining the characteristics of such a portfolio in terms of expected return and overall risk is referred to as portfolio analysis.

Portfolio analysis focuses on understanding how different securities interact with one another. Each security has its own expected return and level of risk, but the total risk of a portfolio depends not only on the individual securities but also on the relationship between their returns. Statistical measures such as weighted average, variance, standard deviation, covariance, and correlation are commonly used to evaluate portfolio performance. Diversification plays a significant role in this process because it helps spread investment across different securities, industries, or asset classes. Proper diversifi-

cation reduces the impact of company-specific risks while maintaining expected returns.

The concept also explains that risk reduction depends on the degree of correlation among securities. Perfect positive correlation provides little benefit from diversification, whereas perfect negative correlation offers maximum risk reduction. In practical situations, most securities are partially correlated, making diversification an effective but not perfect method of reducing risk. Portfolio analysis therefore provides a scientific approach to constructing investment portfolios that efficiently balance return and risk, enabling informed investment decisions based on measurable financial principles.

Keywords

Portfolio Analysis, Expected Return, Diversification

Discussion

4.2.1. Portfolio Analysis

Portfolio analysis is the process of evaluating a group of investments to understand their expected return and overall risk. Every security, such as a share, bond, or debenture, has its own level of risk and expected return. The future return from a security is uncertain because market conditions, company performance, economic changes, and other factors influence investment outcomes. This uncertainty in returns is known as investment risk. Since most investors prefer to reduce risk while earning satisfactory returns, they usually avoid investing all their money in a single security. Instead, they spread their investments across different securities so that poor performance in one investment may be offset by better performance in another. This principle is commonly explained by the saying, "Do not put all your eggs in one basket."

A collection of different securities held by an investor is called a portfolio. The process of selecting and combining different securities to create a portfolio is known as diversification. Diversification helps reduce the overall risk of investment because the securities included in the portfolio may not all react in the same way to changes in market conditions. For example, if one industry experiences a decline, securities from another industry may continue to perform well. Therefore, diversification enables investors to spread risk across different companies, industries, or types of assets. Although diversification cannot completely eliminate risk, it can significantly reduce the impact of unsystematic or company-specific risk.

A large number of portfolios can be formed from a given set of securities. However, not every portfolio is equally beneficial. A rational investor aims to construct an efficient portfolio, which offers the highest possible return for a given level of risk or the lowest possible risk for a desired level of return. To identify such a portfolio, the investor must evaluate the expected return and risk associated with different combinations of securities. This evaluation process is known as portfolio analysis and forms the basis of effective portfolio management.

4.2.2. Expected Return of a Portfolio

The first step in portfolio analysis is to identify the securities that are suitable for investment. After selecting the securities, the investor estimates the expected return and risk of each security. The expected return is generally calculated as the average or mean return expected from the investment, while the risk is measured using statistical tools such as variance or standard deviation.

The expected return of a portfolio represents the average return that an investor expects to earn from the combined investments in the portfolio. It is calculated as the weighted average of the expected returns of all the securities included in the portfolio. The weight assigned to each security depends on the proportion of the total investment made in that particular security. Therefore, securities with a larger investment have a greater influence on the portfolio's expected return.

For example, consider a portfolio comprising two equity shares, P and Q. The expected return on Share P is 15%, while Share Q has an expected return of 20%. If 40% of the total investment is allocated to Share P and the remaining 60% to Share Q, the expected return of the portfolio is calculated as follows:

$$\text{Expected Portfolio Return} = (0.40 \times 15) + (0.60 \times 20) = 18\%$$

Thus, the portfolio is expected to generate a return of 18%. This method can also be applied to portfolios containing more than two securities by multiplying the expected return of each security by its investment weight and adding the results.

The formula for the calculation of expected portfolio return may be expressed as shown below

$$\bar{r}_p = \sum_{i=1}^n x_i \bar{r}_i$$

Where:

$\bar{r}_p$ = Expected return of the portfolio

x_i = Proportion (weight) of funds invested in security i

$\bar{r}_i$ = Expected return of security i

n = Number of securities in the portfolio



4.2.3. Risk of a Portfolio

While calculating the expected return of a portfolio is relatively straightforward, measuring its risk is more complex. The risk of an individual security is quantified by its variance or standard deviation, which indicates the likely deviation of actual returns from the expected return. A higher variance or standard deviation signifies greater uncertainty and, consequently, higher investment risk.

The overall risk of a portfolio depends not only on the individual risks of its constituent securities but also on how their returns move in relation to each other. Some securities may appreciate simultaneously, while others may move in opposing directions. Therefore, the interaction between the returns of different securities plays a significant role in determining the total portfolio risk.

This relationship is measured using covariance, a statistical measure that indicates how the returns of two securities move together over time. It helps investors understand the extent to which one security influences the risk of another within the same portfolio. Portfolio risk is lower when securities have low or negative covariance, as losses in one security may be offset by gains in another.

The covariance between two securities can be calculated using the following formula:

$$\text{Cov}_{xy} = \frac{\sum_{i=1}^N (R_x - \bar{R}_x)(R_y - \bar{R}_y)}{N}$$

Where:

Cov_{xy} = Covariance between securities X and Y

R_x = Return of security X

R_y = Return of security Y

$\bar{R}_x$ = Expected (mean) return of security X

$\bar{R}_y$ = Expected (mean) return of security Y

N = Number of observations

4.2.4. Reduction of Portfolio Risk through Diversification

Diversification is the process of investing in various securities to construct a portfolio. The primary goal of diversification is to mitigate the overall investment risk without diminishing the expected return. Instead of allocating all capital to a single security, investors distribute their funds across different securities, industries, or asset classes. This strategy helps to lessen the impact of poor performance from any individual investment. Should one security perform unfavourably, gains from other securities may help to offset the loss, thereby making the overall portfolio less risky.

For instance, consider a portfolio comprising two securities with individual standard deviations of 50 and 30. When combined into a portfolio, the portfolio's standard

deviation becomes 17.09. This illustrates that diversification has reduced the total risk to a level below that of either security taken individually. The degree of risk reduction is contingent upon the relationship between the returns of the securities, a relationship measured by correlation or covariance.

The impact of diversification can be understood by examining three scenarios: perfect positive correlation, perfect negative correlation, and no correlation between security returns.

4.2.5. Security Returns Perfectly Positively Correlated

When two securities are perfectly positively correlated, their correlation coefficient (r) is +1. This signifies that the returns of both securities consistently move in the same direction. If the return on one security increases, the return on the other also increases. Conversely, if one security falls, the other also falls.

The portfolio variance is calculated using the following formula:

$$\sigma_p^2 = x_1^2\sigma_1^2 + x_2^2\sigma_2^2 + 2x_1x_2r_{12}\sigma_1\sigma_2$$

Since $r = +1$, the formula becomes:

$$\sigma_p = x_1\sigma_1 + x_2\sigma_2$$

This means that the portfolio standard deviation is simply the weighted average of the standard deviations of the individual securities.

For example:

Standard deviation of Security P = 50

Standard deviation of Security Q = 30

Investment in P = 40%

Investment in Q = 60%

Portfolio standard deviation:

$$(0.4 \times 50) + (0.6 \times 30) = 38$$

If the investment proportions change to 75% in P and 25% in Q, the portfolio standard deviation becomes:

$$(0.75 \times 50) + (0.25 \times 30) = 45$$

Thus, when securities are perfectly positively correlated, diversification merely averages the risk. It does not reduce the portfolio risk below the risk of the individual securities. Therefore, diversification is not highly effective in this scenario.

4.2.6. Security Returns Perfectly Negatively Correlated

When two securities are perfectly negatively correlated, the correlation coefficient (r) is -1. In this instance, the returns of the two securities invariably move in opposite



directions. If the return on one security increases, the return on the other decreases by a corresponding amount.

The portfolio variance is calculated as:

$$\sigma_p^2 = x_1^2 \sigma_1^2 + x_2^2 \sigma_2^2 - 2x_1 x_2 \sigma_1 \sigma_2$$

The portfolio standard deviation becomes:

$$\sigma_p = x_1 \sigma_1 - x_2 \sigma_2$$

Using the same example:

Standard deviation of Security P = 50

Standard deviation of Security Q = 30

Investment in P = 40%

Investment in Q = 60%

Portfolio standard deviation:

$(0.4 \times 50) - (0.6 \times 30) = 2$ This result shows that portfolio risk is reduced to a very low level. If investment proportions are selected correctly, portfolio risk can even become zero. Therefore, diversification is most effective when securities are perfectly negatively correlated, as the gains in one security completely offset the losses in the other.

4.2.7. Security Returns Not Correlated

In real-life situations, securities are usually not perfectly positively or negatively correlated. Their returns may move independently or show only partial correlation. In such cases, diversification helps reduce portfolio risk, but it cannot eliminate it completely. The lower the correlation between securities, the greater the reduction in portfolio risk. Therefore, investors usually select securities with low or negative correlation to achieve better diversification.

Diversification is one of the most important principles of portfolio management. By combining securities with different patterns of return, investors can reduce the overall risk of their portfolios while maintaining satisfactory returns. The effectiveness of diversification depends mainly on the degree of correlation between the returns of the securities included in the portfolio.

4.2.8. Portfolios with More Than Two Securities

So far, portfolio analysis has been explained using a portfolio containing only two securities. In practice, however, investors usually invest in portfolios that contain many securities rather than just two. A portfolio with a larger number of securities provides better diversification and helps reduce overall investment risk. The main advantage of adding more securities is that the risk associated with one security can be balanced by the performance of others in the portfolio.

As more securities are added to a portfolio, the total portfolio risk generally decreases, provided that the securities are not perfectly positively correlated. If the returns of different securities do not move exactly in the same direction, the fluctuations in one investment can be offset by the movements in another. As a result, the overall standard deviation or risk of the portfolio becomes smaller. Therefore, diversification helps investors reduce risk while maintaining the expected level of return.

In theory, if a portfolio contains a large number of securities with zero or negative correlation, the portfolio risk can be reduced to a very low level. However, such a situation is rarely found in real financial markets. Most securities are positively correlated to some extent because they are affected by common economic and market factors. Although the correlation is usually less than +1, it is still positive. Consequently, diversification reduces portfolio risk but cannot eliminate it completely.

Another important feature of diversification is that its benefits are limited. Research has shown that most of the reduction in portfolio risk occurs when the portfolio contains about 25 to 30 well-diversified securities. As additional securities are included beyond this point, the reduction in risk becomes very small. Therefore, adding a large number of securities after reaching this level provides only a marginal improvement in diversification. Investors should therefore focus on selecting quality securities with low correlation rather than simply increasing the number of investments.

The total risk of an individual security comprises two components: systematic risk and unsystematic risk. Systematic risk, also known as market risk, stems from factors affecting the entire market, such as inflation, interest rate fluctuations, economic conditions, political events, and government policies. As these factors influence nearly all securities, systematic risk cannot be mitigated through diversification.

The second component is unsystematic risk, also referred to as specific or company-related risk. This type of risk arises from factors unique to a particular company or industry, including management decisions, labour disputes, financial difficulties, technological advancements, or business failures. Unlike systematic risk, unsystematic risk can be significantly reduced or even eliminated by holding a well-diversified portfolio of securities.

As more securities are combined into a portfolio, the unsystematic risks of individual companies tend to offset each other, leading to a substantial reduction in the overall portfolio risk. Eventually, with sufficient diversification, almost all unsystematic risk is eliminated, leaving only systematic risk. Since systematic risk cannot be diversified away, it represents the minimum level of risk that every investor must accept when investing in the market.



Question

A portfolio consists of four securities with the following expected returns and proportions of investment:

Security	Expected Return (%)	Proportion of Investment
P	17.5	0.15
Q	24.8	0.25
R	15.7	0.45
S	21.3	0.15

Calculate the expected return of the portfolio.

Solution

The expected return of a portfolio is calculated using the formula:

$$\bar{R}_p = \sum_{i=1}^n X_i \bar{R}_i$$

Where:

$\bar{R}_p$ = Expected return of the portfolio

X_i = Proportion of funds invested in security i

$\bar{R}_i$ = Expected return of security i

Substituting the given values:

$$\begin{aligned}\bar{R}_p &= (0.15 \times 17.5) + (0.25 \times 24.8) + (0.45 \times 15.7) + (0.15 \times 21.3) \\ &= 2.625 + 6.200 + 7.065 + 3.195 \\ &= 19.085\%\end{aligned}$$

Expected Return of the Portfolio = 19.09%

Question

The following variance-covariance matrix and portfolio weights are given for three securities A, B, and C.

Variance-Covariance Matrix

Security	A	B	C
A	425	-190	120
B	-190	320	205
C	120	205	175

Portfolio Weights

$$W_A = 0.35$$

$$W_B = 0.25$$

$$W_C = 0.40$$

Using the above information, calculate the portfolio standard deviation.

Solution

The portfolio variance for a portfolio containing more than two securities is calculated using the following formula:

$$\sigma_p^2 = \sum_{i=1}^n \sum_{j=1}^n X_i X_j \sigma_{ij}$$

Where:

$$\begin{aligned} \sigma_p^2 &= (0.35 \times 0.35 \times 425) \\ &\quad + (0.35 \times 0.25 \times -190) \\ &\quad + (0.35 \times 0.40 \times 120) \\ &\quad + (0.25 \times 0.35 \times -190) \\ &\quad + (0.25 \times 0.25 \times 320) \\ &\quad + (0.25 \times 0.40 \times 205) \text{ ties } i \text{ and } j \\ &\quad + (0.40 \times 0.35 \times 120) \\ &\quad + (0.40 \times 0.25 \times 205) \\ &\quad + (0.40 \times 0.40 \times 175) \\ &= 52.06 - 16.63 + 16.80 - 16.63 + 20.00 + 20.50 + 16.80 + 20.50 + 28.00 \\ \sigma_p^2 &= 141.40 \end{aligned}$$

Therefore,

$$\sigma_p = \sqrt{141.40} = 11.89$$

Answer

Portfolio Variance = 141.40

Portfolio Standard Deviation = 11.89



Recap

Portfolio analysis assesses the return and risk of a collection of investments.

A portfolio consists of various securities held by an investor.

Diversification reduces overall investment risk.

Expected portfolio return is the weighted average of individual security returns.

Investment weights determine each security's contribution to the portfolio's return.

Portfolio risk depends on both individual security risks and their covariance.

Covariance measures how two securities move together.

Correlation explains the direction of movement between securities.

Objective Questions

1. What is a portfolio?
2. What determines the weight of a security?
3. What measures the joint movement of two securities?
4. What is the correlation coefficient for perfect positive correlation?
5. What is the correlation coefficient for perfect negative correlation?
6. Which type of risk is eliminated through diversification?
7. Which type of risk cannot be diversified?
8. Which statistical tool measures the variability in returns?

Answers

1. A collection of investment securities.
2. Proportion of investment.
3. Covariance.
4. +1.
5. -1.
6. Unsystematic risk.
7. Systematic risk.
8. Variance.

Self-Assessment Questions

1. Explain the importance of diversification.
2. Distinguish between portfolio risk and individual security risk.
3. Explain the role of correlation in portfolio management.
4. Differentiate between perfect positive and perfect negative correlation.
5. How does diversification reduce unsystematic risk?
6. Why cannot systematic risk be eliminated?
7. Discuss the practical importance of portfolio analysis in investment decisions.

Assignments

1. Compare the risks of two individual securities using standard deviation.
2. Compare portfolio risk under positive and negative correlation assumptions.
3. Analyse the diversification strategy of a mutual fund.



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5
BLOCK

Modern Portfolio Theory

Unit 1

Markowitz Model

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ describe the principles of the Markowitz Model and portfolio selection
- ◇ explain the concepts of the Opportunity Set and Efficient Frontier.
- ◇ identify the relationship between risk and return in portfolio selection

Prerequisite

Mr. Raj works for a multinational company. Every month, after meeting all his expenses, a portion of his salary is left unused in his bank. Mr. Raj is interested in the stock market. He collects information about the stock market, its workings, and current trends from newspapers, magazines and journals.

But Mr. Raj is hesitant to invest his money in the stock market because of its risk. Investors around the globe would have gone through this stage of fear before investing. Anything that exists in the system cannot be avoided. We cannot avoid risk. Avoiding investments altogether due to the fear of risk is the biggest risk. How to minimise or control the risk is the question that needs to be answered. An investor should first understand the security, its risk and return, and the company or industry in which he is going to invest. The biggest mistake an investor can ever make is investing the entire fund in one security. Investment is one of the important decisions in a person's life. It has to be done properly and only in those products that help to fulfil our investment goals with minimum risk.

Keywords

Security, Investment, Portfolio, Diversification, Return, Risk, Efficient Portfolio, Beta.

Discussion

5.1.1 Portfolio

Portfolio may be defined as a bundle of securities. It means a collection of investments owned by the same individual or organization. Investing in securities always excites investors. They are optimistic and always expect a good return from their investment. They consider two properties of a security before investing: risk and return. Risk is the potential for variability in returns. Let's take two stocks, A and B. The risk of stock A is 4.5, and that of B is 5.8. The expected return from stock A is 5.6, and that from stock B is 7.8. Investors can choose A or B according to the financial goals they have set. A rational investor will choose the stock that has the highest return with the lowest risk.

There is a saying by Warren Buffett: “Don't put all your eggs in one basket”. & “Do not save what is left after spending; spend what is left after saving”. When the investor invests his entire fund in one security, he is at great risk. For example, the investor is investing only in the shares of Reliance. We know the future is unpredictable. Eventualities like internal problems in the company may bring down the price of the shares, and the investor may incur a loss. What will the investor do here to minimise loss? The investor can spread his investment across various asset classes such as equity, gold or debt so that his risk is minimised. The method used for reducing risk is called diversification. For this, a portfolio should be constructed.

What is a portfolio? A group of securities, or a blend of securities, held together as an investment is called a portfolio. The goal of portfolio construction is to generate a portfolio with the highest return and the lowest risk. Such a portfolio is known as an optimal portfolio. The process of finding an optimal portfolio is called portfolio selection. Investors usually think that they have done diversification and constructed a good portfolio.

Portfolio management is the art and science of making decisions about investment mix and policy, matching investments to objectives, asset allocation for individuals and institutions and balancing risk against performance. The art of selecting the right investment policy for the individuals in terms of minimum risk and maximum return is known as Portfolio management.

5.1.2 Markowitz model or modern portfolio theory

Let's take the example of Ms. Riya. Ms Riya invested in the stocks of HUL, Marico Industries, Gillette India, and P&G. Ms Riya is happy and at peace, thinking that she invested in different stocks. A closer look will tell you that all of these are FMCG stocks.



They are not negatively correlated as they are from the same industry. The industry will be affected as a whole, and this will threaten Ria's return, and she will incur a loss. What Ms Riya can do here is invest in the securities of automobile companies, banks, cement companies, FMCGs, telecommunication companies, etc., so that the risk gets diversified. This will ensure that the overall portfolio returns remain stable. It is rarely desirable to invest the entire fund in a single security. Select the right set of securities to construct your portfolio. The logical and mathematical framework for determining the optimal portfolio was provided by Harry Markowitz in his work on portfolio analysis in the early 1950s. It is referred to as the Markowitz model or modern portfolio theory.

The Markowitz Model, developed by Harry Markowitz in 1952, is a portfolio selection model that helps investors construct an optimal portfolio by balancing risk and expected return. It emphasizes that investors should not evaluate securities individually but should consider how different securities interact within a portfolio. The model demonstrates that diversification can reduce overall portfolio risk without necessarily reducing expected returns.

The Markowitz Model assumes rational, risk-averse investors, perfect capital markets, equal information, and risk measured by variance or standard deviation. It also assumes that diversification, based on the correlation among securities, helps construct an optimal portfolio with the best risk-return combination.

5.1.3 Feasible set of portfolios

As discussed earlier, when you are constructing a portfolio, make sure that you invest in different types of securities in different proportions. In such a way, you can construct a large number of portfolios with numerous securities. This will help to bring out a feasible set of portfolios in which you can invest. This is known as the portfolio opportunity set.

Portfolios in the opportunity set will have their own expected return and risk (variance or standard deviation of returns). Expected return is the future return that an investor expects from his investment. Realised return is the return actually obtained by the investor from his investment. Variation of realised return from expected return is risk or variance. An investor has to choose from the portfolio opportunity set. Some portfolios will be more attractive than others.

A portfolio will dominate another if it has either a lower standard deviation and the same expected return as the other or a higher expected return and the same standard deviation as the other. Portfolios dominated by other portfolios are known as inefficient portfolios. An investor won't be ready to invest his hard-earned money in inefficient portfolios. He will always go for efficient portfolios.

5.1.4 Efficient set of portfolios and Efficient frontier

The concept of efficient frontier was introduced by Markowitz and is easier to understand than it sounds. It is a graphical representation of all the possible mixtures of risky assets for an optimal level of return. Given any level of risk, as measured by

standard deviation.

The table below shows illustrative figures for the expected returns and standard deviation of some portfolios.

Portfolio	Expected return (%)	Standard deviation (Risk)
AB	5.5	4.4
CD	7.5	5.6
EF	9.1	7.4
GH	10.3	8.1
IJ	11.5	8.1
KL	12.2	9.1
MN	13.5	9.3
OP	13.5	11.1
QR	15.3	12.5
ST	16.5	12.7

From the above table, the expected return of portfolios MN and OP is 13.5, but there is a difference in their standard deviation (risk). The standard deviation of MN is 9.3, and that of OP is 11.1. Considering GH and IJ portfolios, the standard deviation of both portfolios is 8.1. However, their expected returns are 10.3 and 11.5, respectively. Here, the selection of portfolios will be guided by two criteria:

1. When two portfolios with the same expected return are given, the investor would prefer the one with the lower risk.
2. When two portfolios with the same standard deviation (risk) are given, the investor would prefer the one with the higher expected return.

Let us discuss the efficient set of portfolios with the help of a graph.

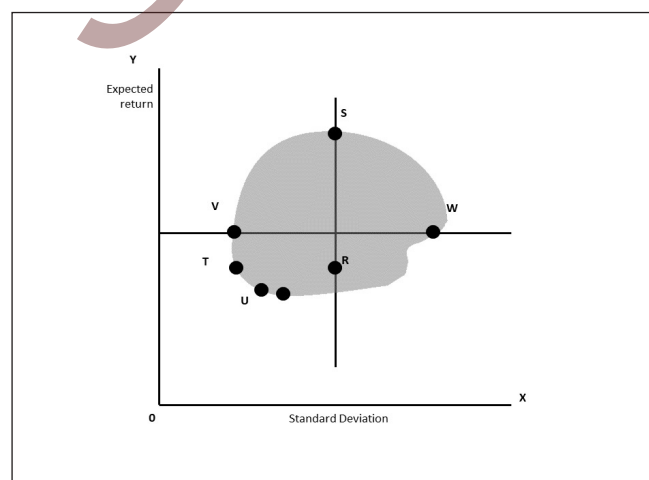


Fig 5.1.1

The Y-axis represents expected return, and the X-axis represents standard deviation. Let us consider portfolios W and V. Both of them have the same expected return but different risks. Portfolio V is less risky than W, so portfolio V will be preferred by the investor. Now consider portfolios T and V. Portfolio V is more attractive than portfolio T because portfolio V offers more return than portfolio T even though their risks are the same. Any portfolio that gives more returns for the same level of risk, or the same return with lower risk, will be preferred by the investor. A rational investor will always search for portfolios that help him decrease risk and increase returns.

From the opportunity set of portfolios represented in the graph, we can understand that portfolio T has the lowest risk compared to all other portfolios. Portfolio T in this diagram represents the global minimum variance portfolio. Portfolio S has the highest expected return among all portfolios. Portfolios lying in the northwest boundary of the shaded area are more efficient than all the portfolios in the interior of the shaded area. This boundary of the shaded area is called the efficient frontier because it contains all the efficient portfolios in the opportunity set. The set of portfolios lying between the global minimum variance portfolio and the maximum return portfolio on the efficient frontier represents the efficient set of portfolios. The efficient frontier is shown as a separate figure below.

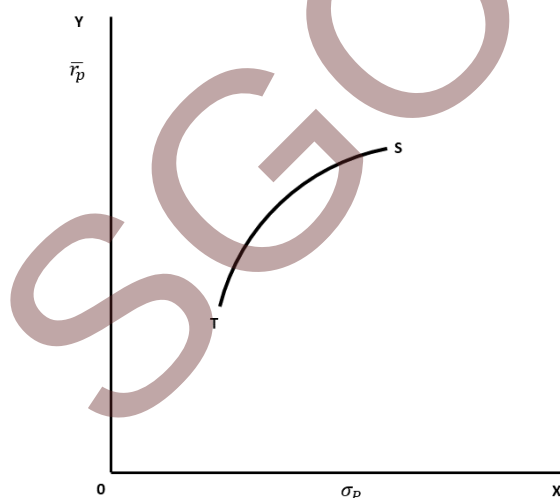


Fig 5.1.2

Efficient frontier is a concave curve in the risk-return area that stretches from minimum variance portfolio to the maximum return portfolio.

5.1.5 Selection of Optimal Portfolio

Rational investors will always prefer to invest in efficient portfolios. The satisfaction that an investor enjoys from the portfolio return is utility. An investor receives greater utility from higher returns. The portfolio that an investor selects from the efficient

frontier depends on the degree of risk aversion, or risk tolerance. This can be shown through risk-return utility curves or indifference curves. Each indifference curve shows different combinations of risk and return. Each curve moving upwards shows a higher level of utility. An investor wishes to choose the higher indifference curve, as his goal is maximum satisfaction. But the selection of a portfolio depends on the investor's risk perception. The point at which the investor's indifference curve touches the efficient frontier is his optimal portfolio. This is shown in the figure below.

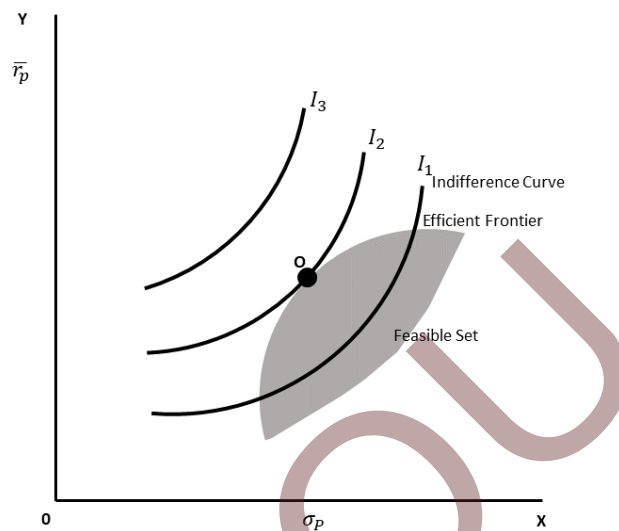


Fig 5.1.3

X axis shows standard deviation and Y axis shows expected return of portfolio. O is the point at which investor's indifference curve, I_2 , touches the efficient frontier. That is his optimal portfolio.

5.1.6 Process of Portfolio Selection under the Markowitz Model

The Markowitz Model provides a systematic method for selecting an optimal portfolio by balancing risk and expected return. The portfolio selection process involves the following steps:

1. Estimation of Expected Returns

The first step is to estimate the expected return of each security under consideration. This is usually based on historical performance, current market conditions, and future earnings prospects. The expected return represents the average return an investor expects to earn from a security over a given period.

2. Measurement of Risk

After estimating returns, the investor measures the risk associated with each security. In the Markowitz Model, risk is measured by the variance or standard deviation of

returns. A higher standard deviation indicates greater variability in returns and, therefore, higher risk.

3. Determination of Correlation between Securities

The next step is to determine how the returns of different securities move in relation to one another. This relationship is measured using covariance or the correlation coefficient. Combining securities with low or negative correlation helps reduce the overall risk of the portfolio through diversification.

4. Formation of Alternative Portfolios

Based on the expected returns, risks, and correlations, different combinations of securities are created. Each combination forms a portfolio with a unique level of expected return and risk. Investors compare these alternative portfolios to identify the most suitable ones.

5. Construction of the Opportunity Set

The risk and return of all possible portfolios are plotted on a graph known as the Opportunity Set or Feasible Set. Every point on the graph represents a possible portfolio. Some portfolios provide higher returns with lower risk than others.

6. Identification of the Efficient Frontier

Among all feasible portfolios, only those that offer the highest expected return for a given level of risk or the lowest risk for a given level of return are considered efficient. These portfolios form the Efficient Frontier, which appears as the upper boundary of the Opportunity Set.

7. Selection of the Optimal Portfolio

The final step is to select the optimal portfolio from the Efficient Frontier. The choice depends on the investor's risk tolerance and return expectations. A risk-averse investor may choose a portfolio with lower risk, while a more aggressive investor may select a portfolio with higher expected return and higher risk.

5.1.6 Single Index Model

The two major limitations of the Markowitz model were the large number of input data required and the complexity of computations. Because of this, the model hasn't been very useful in portfolio analysis applications. Simplification of the theory was required before it was practically applied. Index models were the solution to this problem. The fundamental premise of the single index model introduced by William Sharpe is that stock market movements affect all stocks. A cursory examination of share prices demonstrates that as the market rises, most shares' prices rise as well. When the market falls, the prices of most stocks tend to fall. This suggests that a common response to market fluctuations could be one reason why security returns covary together.

A simple linear regression analysis with the returns on an individual security as the dependent variable and the returns on the market index as the independent variable can be used to explain the movement of equities with the market index. The return of an individual security may be expressed as:

$$R_i = \alpha_i + \beta_i R_m + e_i$$

α_i = component of security i's return

R_m = rate of return on market index

β_i = constant that measures changes in R_i given a change in R_m

e_i = error term representing random return

This equation divides a stock's return into two parts: one owing to the market and the other unrelated to the market. The beta component in the equation determines how sensitive stock returns are to market index returns. It expresses how much a security's return will fluctuate in response to changes in the market return. A beta coefficient larger than one suggests that the stock is more responsive to the market. The alpha parameter represents the security's return if the market return is zero, e_i represents the unexpected return due to factors not detected by the model.

Recap

- ◇ A group of securities held together as an investment is called a portfolio.
- ◇ A portfolio with the highest return and lowest risk is called an optimal portfolio.
- ◇ The process of finding an optimal portfolio is called portfolio selection.
- ◇ *Diversification* is a risk management strategy that mixes a wide variety of investments within a portfolio.
- ◇ The feasible set of portfolios in which an investor can invest is called the portfolio opportunity set.
- ◇ Some portfolios in the opportunity set will be more attractive than others.
- ◇ Portfolios that are dominated by other portfolios are called inefficient portfolios.
- ◇ When two portfolios with the same expected return are given, the investor would prefer the one with the lower risk.
- ◇ When two portfolios with the same standard deviation (risk) are given, the investor would prefer the one with the higher expected return.
- ◇ The investor will always prefer efficient portfolios.



- ◇ Efficient frontier is a concave curve in the risk-return area that stretches from minimum variance portfolio to the maximum return portfolio.
- ◇ Single index model says that all stocks are affected by movements in the stock market.

Objective Questions

1. Who is the father of modern portfolio theory?
2. Which portfolio will the investor select if both portfolios have the same expected return?
3. Which portfolio will the investor select if both portfolios have the same risk?
4. Which method is used for reducing risk?
5. What is the goal of portfolio construction?
6. What is the shape of the efficient Frontier?
7. Who introduced the single index model?

Answers

1. Harry Markowitz.
2. Portfolio with the lowest risk.
3. Portfolio with highest return.
4. Diversification.
5. Generate a portfolio with the highest return and the lowest risk.
6. Concave curve.
7. William Sharpe.

Self-Assessment Questions

1. What do you mean by risk?
2. What is a portfolio?
3. What is meant by an optimal portfolio?
4. What is a portfolio opportunity set?
5. What do you mean by efficient frontier?
6. List the limitations of the Markowitz model.
7. Differentiate between the Opportunity Set and the Efficient Frontier.
8. Diversification reduces unsystematic risk. Explain this statement with reference to the Markowitz Model

Assignments

1. Describe the process of portfolio selection under the Markowitz Model with a suitable diagram.
2. Explain the concepts of the Opportunity Set and the Efficient Frontier. How do they help investors make investment decisions?
3. Meera has identified several possible portfolios with different combinations of risk and return. She wants to choose only those portfolios that provide the highest return for each level of risk.
4. Which concept of the Markowitz Model will help Meera make her decision? Explain briefly.

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SGOU

Unit 2

Capital Asset Pricing Model

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ Describe the concept and significance of the Capital Asset Pricing Model (CAPM)
- ◇ Explain the basic assumptions of the Capital Asset Pricing Model
- ◇ Comprehend the components of the CAPM equation

Prerequisite

Mr.Amal wanted to invest his hard-earned money to achieve his future financial goals. He initially decided to invest in a bank deposit. Before making the investment, he sought the opinion of his friend Ms.Naina. Ms.Naina said, “A bank fixed deposit is a safe investment that offers stable returns with very low risk. However, if you are willing to take some risk, you can also consider investing in the stock market. Investments in securities have the potential to generate higher returns than bank deposits.”

Then Mr.Amal replied, “But I have heard that investing in the stock market is very risky.” “Yes,” Ms.Naina said, “every investment involves some level of risk. In the stock market, unsystematic risk (company-specific risk) can be reduced through diversification, whereas systematic risk (market risk) cannot be eliminated.

For example, suppose you invest in the shares of five different companies. If one company faces a labour strike, its production, sales, and share price may decline. Since your investment is diversified, the overall impact on your portfolio will be limited. This is an example of unsystematic risk. On the other hand, factors such as inflation, recession, or changes

in interest rates affect the entire economy and almost all companies. Such risks are known as systematic risks and cannot be reduced through diversification.

So, the choice depends on your risk tolerance. Always remember that investments offering higher potential returns usually involve higher levels of risk.”

Keywords

Risk, Return, Beta, Risky assets, Risk-less assets, Capital market line, Security market line

Discussion

5.2.1 Introduction to Capital Asset Pricing Model (CAPM)

Systematic risk or market risk is undiversifiable. It affects the performance of all companies and their stock prices. Even a well-diversified portfolio is not risk-free. Market risk is the real risk of a security which cannot be minimized through diversification. It is measured using beta. Low beta shows low risk and high beta shows high risk. The capital asset pricing model explains the nature of the relationship between expected return and systematic risk of a security. CAPM is based on certain assumptions. They are:

1. The market is efficient
2. Investors have rational investment goals.
3. All assets are divisible and liquid.
4. Securities face no bankruptcy or insolvency
5. No transaction costs
6. A single investor's purchase or sale cannot affect prices.
7. No personal income taxes.
8. Investors are able to borrow and lend at risk-less rate of interest.
9. Investors have identical expectations.

5.2.2 Efficient frontier with riskless lending and borrowing

According to modern portfolio theory, the efficient frontier contains a set of efficient portfolios of risky assets. But there are riskless assets too. Risk-less assets or risk-free assets are those assets whose return is certain. An investor will be sure about the value of the asset at the end of the holding period. The standard deviation of a risk-free asset is zero; for example, treasury bills and time deposits in a bank. An investor can invest a portion of his fund in risk-free assets and a portion in risky assets. Investing in a risk-less asset is equivalent to lending at the risk-free asset's rate of return, that is R_f . An

investor can also borrow at the same risk-free rate for investing in a portfolio of risky assets. Investor can use his own funds and borrowed funds for investment.

The efficient frontier of risky assets is concave in shape. When an investor uses riskless lending and borrowing, this shape is transformed into a straight line. This line is the capital market line.

5.2.3 Capital Market Line (C M L)

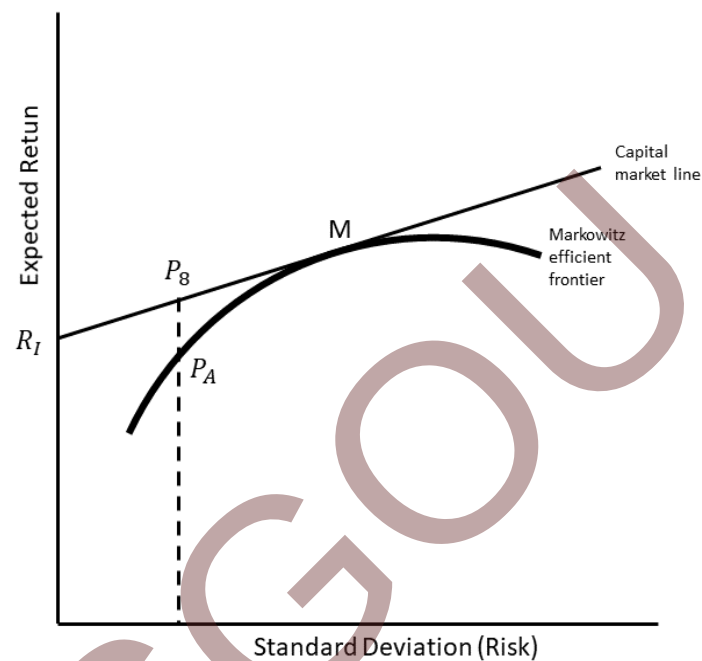


Figure 5.2.1 Capital Market Line

The concave curve represents the efficient frontier of risky assets. M is the market portfolio of all risky securities in the market. Once a risk-free asset is introduced and investors can borrow and lend at a risk-free rate, the concave curve changes to a straight line. This line is the capital market line. It is the combination of a risk-free asset and an efficient portfolio. All efficient portfolios on the capital market line are feasible for the investor to construct. Compare a portfolio on CML with the portfolio on Markowitz efficient frontier. Let us compare portfolio PA with portfolio PB. PA is on the Markowitz efficient frontier and PB is on capital market line. They have the same risk but different expected returns. PB's expected return is greater than PA's. So, a risk-averse investor will prefer PB to PA as PB dominates PA. In fact, this is true for all but one portfolio on the line: portfolio M, which is on the Markowitz efficient frontier. All efficient portfolios lie along the capital market line. Other portfolios which are not efficient lie below the capital market line. The risk-return relationship of inefficient portfolios or individual securities is not explained by the capital market line.

5.2.4 Security Market Line (SML)

The risk –return relationship of an efficient portfolio is measured by the capital market line. All portfolios other than an efficient portfolio will lie below the C M L. The CML does not describe the risk-return relationship of inefficient portfolios of individual securities. In the earlier part, we have seen that the total risk of a security is composed of two major components: systematic and unsystematic risk. In a well-diversified portfolio, unique risk or unsystematic risk is eliminated. But systematic risk can't be eliminated or diversified. Systematic risk is measured by beta, β . Beta measures the risk of securities in relation to changes in the stock market. A beta value of 1 indicates that the security moves in the same direction and at the same rate as the market. So, the beta of the market is taken as one. Beta of your stock is 1.2. What does that mean? The risk of your stock is 1.2 times the risk prevailing in the market. You observed a decline in Nifty by 5% over the past 1 month. What impact does this have on your stock? Your stock has declined by 1.2 times of 5%, i.e. 6%.

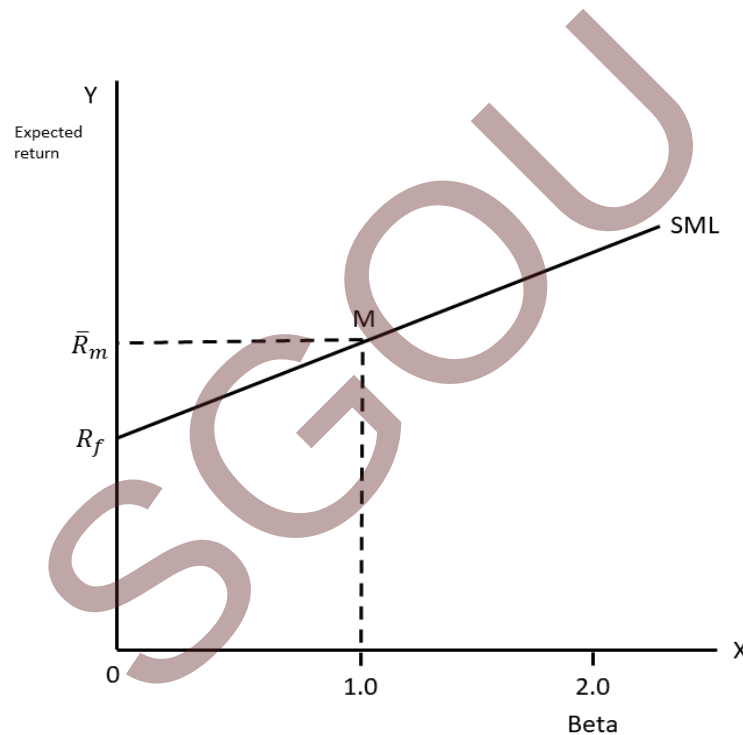


Figure 5.2.2 Security Market Line

Here, X axis represents beta coefficients and Y axis represents expected return. R_f indicates risk free return, which is the reward for waiting. R_f is the minimum return an investor expects from a security. The expected return of risk-free asset is equivalent to R_f and its beta coefficient is zero. $\bar{R}_m$ indicates expected return on risky assets, which is the reward for bearing risk. Difference between $\bar{R}_m$ and R_f is the risk premium, which is the excess return the investor gets. The expected return of an efficient portfolio, M, is equivalent to $\bar{R}_m$ and its beta coefficient is one. A straight line joining these two points, R_f and $\bar{R}_m$ is called the security market line. SML shows the relationship between expected return and beta of a security or portfolio.

Here, the X-axis represents beta coefficients and the Y-axis represents expected return. R_f indicates risk-free return, which is the reward for waiting. R_f is the minimum return an investor expects from a security. The expected return of risk-free asset is equivalent to R_f and its beta coefficient is zero. $\bar{R}_m$ indicates the expected return on risky assets, which is the reward for bearing risk. Difference between $\bar{R}_m$ and R_f is risk premium which is the excess return the investor gets. The expected return of efficient portfolio, M, is equivalent to $\bar{R}_m$ and its beta coefficient is one. A straight line joining these two points, R_f and $\bar{R}_m$ is called security market line. SML shows the relationship between expected return and beta of a security or portfolio.

Relationship expressed as equation: $\bar{R}_i = R_f + \beta_i (\bar{R}_m - R_f)$

$\bar{R}_i$ = expected rate of return of a security

R_f = rate of return of riskless security

β_i = beta of a security

$\bar{R}_m$ = expected return of risky security /market return

For example, imagine you have ₹ 1,00,000 with you. You can invest either in the bank or the share market. The bank offers you a return of 5%, which is risk-free. So, the risk will be zero. The share market offers you the same return. Where will you invest? In the bank! Why? Both of them offers same return. Then, why invest in the share market, which is very risky? Suppose the share market offers you 15% return. Will you be ready to take the risk? We know that the beta of the market is 1, i.e., the extra risk taken here is 1. What about the extra return you get? That is $\bar{R}_m - R_f$, 15% - 5% = 10%. The excess return earned above the risk-free return is called risk premium, which is rewarded for bearing risk. Beta shows how much riskier an investment is with respect to the stock market. Hence, the risk premium that a stock should earn is beta times the risk premium from the market.

CAPM, or the Capital Asset Pricing Model, does not differentiate between efficient portfolios and inefficient portfolios. It shows the relationship between expected return and risk of all securities and all portfolios. The relationship between risk and return established by the security market line is called CAPM or Capital Asset Pricing Model. Let's consider a simple example.

A company's beta is 1.30. The market return is 13%. The risk-free rate is 9%. What is the expected return?

Ans: $\bar{R}_i = R_f + \beta_i (\bar{R}_m - R_f) = 9\% + 1.30 (13\% - 9\%) = 9\% + 5.2\% = 14.2\%$



5.2.5 Difference Between CML & SML

CML	SML
◇ Considers total risk	◇ Considers systematic risk
◇ Risk measured by standard deviation	◇ Risk measured by beta
◇ Valid only for efficient portfolios	◇ Valid for all portfolios and all individual securities

Recap

- ◇ There are two types of risks: systematic risk and unsystematic risk.
- ◇ Unsystematic risk is company-specific and is diversifiable.
- ◇ Systematic risk is undiversifiable, and it affects all the securities in the market.
- ◇ The real risk of a security is the market risk, which cannot be eliminated.
- ◇ It is measured by the beta coefficient of the security.
- ◇ The efficient frontier is concave in shape.
- ◇ When an investor uses riskless lending and borrowing, the shape of the efficient frontier changes into a straight line. This line is the capital market line (CML).
- ◇ CML shows risk-return relationship of efficient portfolios.
- ◇ Security market line shows the risk-return relationship of all securities and all portfolios, whether efficient or inefficient.
- ◇ Relationship between risk and return established by the security market line is called the Capital Asset Pricing Model (CAPM)

Objective Questions

1. Which are the two important characteristics of an investment?
2. Which risk affects all securities in the market?
3. Which risk is company specific or unique to a company?
4. Which is the real risk of a security which cannot be eliminated through diversification?
5. Which risk is considered in the capital market line?
6. Which risk is considered in the security market line?
7. How is systematic risk measured?

Answers

1. Risk and Return.
2. Systematic risk.
3. Unsystematic risk.
4. Systematic risk.
5. Total risk.
6. Systematic risk.
7. Using beta.

Self-Assessment Questions

1. What is meant by systematic risk?
2. What do you mean by unsystematic risk?
3. What is CAPM?
4. What is SML?
5. What is CML?
6. List the differences between CML and SML.

Assignments

1. Explain the concept of the Capital Asset Pricing Model (CAPM) and discuss its significance in investment decision-making.
2. Describe the basic assumptions of the Capital Asset Pricing Model with suitable examples.
3. Prepare a short report explaining the practical uses and limitations of the Capital Asset Pricing Model in investment decisions.
4. An investor is considering investing in two securities. Security A has a beta of 0.8, while Security B has a beta of 1.6. The risk-free rate is 5% and the expected market return is 13%.
 - a. Calculate the expected return for both securities using the CAPM equation.
 - b. Explain which security is expected to provide a higher return and why.



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Portfolio Revision and Evaluation

Unit

Portfolio Revision Strategie

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ Explain the need for portfolio revision and the factors affecting it.
- ◇ Differentiate between active and passive portfolio revision strategies.
- ◇ Describe the various formula plans used in portfolio revision
- ◇ Assess the merits and demerits of portfolio revision techniques for effective investment management.

Prerequisite

Imagine that Ms.Anu, a young teacher, started investing ₹1,00,000 in different assets such as shares, bonds, and mutual funds. At the beginning, she carefully selected these investments according to her financial goals and risk tolerance.

After one year, some of her shares performed very well and increased significantly in value, while some bonds showed only small growth. As a result, the proportion of investments in her portfolio changed. The portfolio that was originally balanced no longer matched her investment objectives.

To restore the desired balance and improve returns while controlling risk, Ms.Anu reviewed and adjusted her investments. She sold a portion of the assets that had grown too much and invested in other assets that suited her goals. This process is known as portfolio revision.

Portfolio revision is necessary because market conditions, economic factors, investor objectives, and risk preferences change over time. Investors may adopt different revision strategies such as active or passive revision. They may also use

formula plans like the Constant Rupee Value Plan, Constant Ratio Plan, Variable Ratio Plan, and Rupee Cost Averaging to systematically manage their portfolios.

Thus, portfolio revision helps investors maintain an appropriate asset mix, achieve financial objectives, and respond effectively to changing market conditions.

Keywords

Portfolio revision, active portfolio, passive portfolio, formula plans

Discussion

6.1.1 Meaning of Portfolio Revision

A portfolio is a collection of different securities chosen from a wide range of investment options. Its composition depends on two factors: the specific securities included and the proportion of total funds allocated to each security.

Portfolio revision refers to the process of modifying an existing portfolio to maintain its effectiveness. This can be done by replacing some securities, adding new ones, removing existing ones, or changing the amount invested in each security. As a result, portfolio revision involves the buying and selling of securities. The primary objective of portfolio revision is similar to that of portfolio construction—to achieve the highest possible return for a given level of risk or to minimize risk for a desired level of return.

For example:

Suppose you have a portfolio consisting of 60% stocks (Rs. 6,000) and 40% bonds (Rs. 4,000).

Assume the value of stocks increases by 50%, rising from Rs. 6,000 to Rs. 9,000, while the value of bonds remains unchanged at Rs. 4,000.

Now, the total portfolio value becomes Rs. 13,000, with approximately 69% invested in stocks ($9,000/13,000$) and 31% in bonds ($4,000/13,000$). Although the bond investment has not changed in value, its proportion in the portfolio has decreased.

To restore the original 60:40 allocation, portfolio revision would require selling a portion of the stocks and investing the proceeds in bonds. This rebalancing process helps maintain the desired risk-return profile and keeps the portfolio aligned with the investor's objectives.



6.1.2 Need for Portfolio Revision

The main reason for portfolio revision is the changes that occur in financial markets after the portfolio has been constructed. In addition, certain investor-related factors may also make portfolio revision necessary. The key factors that create the need for portfolio revision are as follows:

- ◇ Availability of additional funds for investment
- ◇ Change in risk tolerance
- ◇ Change in the investment goal
- ◇ Need to liquidate a part of the portfolio to provide funds for some alternative use

The portfolio needs to be revised to accommodate the changes in the investor's position.

6.1.3 Factors affecting portfolio revision

The factors influencing portfolio revision are the conditions and changes that require investors to review and adjust their investment holdings to maintain desired returns and risk levels. The factors include -

1. Change in Investment Objectives

Investors may revise their portfolio when their goals change over time, such as shifting from wealth creation in early life to income generation or capital preservation in later stages.

2. Change in Risk Profile

An investor's risk tolerance can change due to age, income stability, family responsibilities, or past market experiences. A lower risk tolerance usually leads to a shift toward safer investments.

3. Market Conditions

Fluctuations in stock prices, interest rates, inflation, and overall market trends directly affect returns and may require rebalancing to maintain expected performance.

4. Performance of Securities

If certain stocks, bonds, or other assets consistently underperform or show weak prospects, they may be replaced with better-performing alternatives.

5. Economic and Political Factors

Economic growth, recession, government policies, taxation rules, and political stability influence investment returns and risk levels, prompting portfolio adjustments.

6. Liquidity Requirements

Investors may need more cash for emergencies, education, or planned expenses, requiring them to shift from long-term investments to more liquid assets.

7. Portfolio Imbalance (Asset Allocation Drift)

Due to price changes, the original proportion of assets (equity, debt, etc.) may change, making periodic rebalancing necessary to restore the desired structure.

6.1.4 Portfolio Revision Strategy

Two broad strategies can be used for portfolio revision: active revision and passive revision. The selection between them depends on the investor's objectives, skills, available resources, and time commitment.

An active revision strategy involves making frequent and often significant changes to a portfolio. Investors who follow this approach generally believe that financial markets are not always fully efficient. According to them, securities may be incorrectly priced at different times because investors have varying or inconsistent expectations about risk and return, which creates opportunities to earn abnormal or excess returns through trading. They also assume that returns and risks in the market can be estimated more accurately by using superior analysis. Hence, active investors are confident that they can outperform the market by identifying mispriced securities and making timely investment decisions.

Active portfolio revision essentially means repeatedly conducting portfolio analysis and selection as new information becomes available. It involves evaluating fundamental factors such as economic conditions, industry performance, and company-specific indicators, along with technical aspects like demand and supply trends. As a result, this strategy requires considerable time, expertise, and resources. It also leads to more frequent trading, which typically increases transaction costs.

For example, suppose an investor has a portfolio mainly invested in technology stocks. After closely studying the market, they notice that the banking sector is expected to grow faster due to rising interest rates and strong loan demand, while technology stocks may face slower growth in the short term.

Based on this analysis, the investor actively revises the portfolio by selling some technology stocks and buying shares of selected banking companies. A few months later, if market conditions change again, they may further adjust the portfolio.

This frequent buying and selling based on market analysis is an example of an active revision strategy.

A passive revision strategy, in contrast, involves making only small and infrequent changes to a portfolio over time. Investors who follow this approach generally believe that financial markets are efficient and that most investors share similar expectations regarding risk and return. Because of this belief, they see little benefit in actively trading or regularly adjusting their portfolios.

Instead, portfolio adjustments under a passive strategy are made according to predetermined rules and procedures known as formula plans. These plans guide investors systematically rebalancing their portfolios in response to changes in the securities market.



Suppose an investor decides to follow a fixed rule that keeps their portfolio in a 60:40 mix of stocks and bonds. Initially, they invest ₹60,000 in stocks and ₹40,000 in bonds. After some time, the stock value rises and becomes ₹75,000, while the bond value remains ₹40,000. Now the portfolio is no longer balanced (it is more heavily weighted toward stocks). Instead of making frequent market-based decisions, the investor simply follows the rule and rebalances the portfolio back to 60:40 by selling some stocks and buying bonds.

This rule-based and infrequent adjustment is an example of a passive revision strategy.

6.1.5 Formula Plans

Security prices in the market keep changing over time. Ideally, investors should purchase securities when prices are low and sell them when prices are high. If portfolio revision is carried out according to this principle, investors can benefit from fluctuations in security prices. However, investors often hesitate to buy when prices fall because they expect prices to decline further or fear that prices may not rise again. Likewise, when prices increase, they are often unwilling to sell because they believe prices may continue to rise and generate even higher profits.

As a result, investors may not make decisions that help them benefit from market price movements. To overcome this problem, certain systematic portfolio revision methods have been developed. These methods help investors take advantage of market fluctuations by buying securities when prices are low and selling them when prices are high. Such methods are known as formula plans.

Formula plans are designed to make market price fluctuations a source of profit for investors. They automate the timing of buying and selling decisions and remove the emotional element from investment decisions. These plans follow predetermined rules that specify when securities should be bought or sold and the quantity to be bought or sold. The rules require specific actions whenever there are changes in market prices.

To implement formula plans, investors divide their investment funds into two portfolios—an aggressive portfolio and a defensive (or conservative) portfolio. The aggressive portfolio generally consists of equity shares, while the defensive portfolio mainly includes bonds and debentures.

Formula plans provide fixed rules for transferring funds between these two portfolios. These rules enable investors to automatically sell shares when prices rise and purchase shares when prices fall.

Several types of formula plans are used for passive portfolio revision. Let us now discuss some of the important formula plans.

1. Constant Rupee Value Plan

The Constant Rupee Value Plan is one of the most popular formula plans used for passive portfolio revision. Under this plan, the investor divides the investment into two portfolios—an aggressive portfolio, consisting mainly of equity shares, and a defensive

portfolio, consisting of bonds and debentures. The main objective of this plan is to maintain the value of the aggressive portfolio at its original investment amount.

Since share prices fluctuate, the value of the aggressive portfolio also changes. When share prices rise, the value of the aggressive portfolio increases. To restore it to its original value, the investor sells a portion of the shares and transfers the sale proceeds to the defensive portfolio by investing in bonds and debentures.

On the other hand, when share prices decline, the value of the aggressive portfolio falls below its original level. To bring it back to the original value, the investor purchases additional shares. The required funds are obtained by selling a part of the defensive portfolio.

Thus, the Constant Rupee Value Plan involves shifting funds from the aggressive portfolio to the defensive portfolio when share prices increase, allowing the investor to book profits. Similarly, funds are transferred from the defensive portfolio to the aggressive portfolio when share prices decline, enabling the investor to purchase shares at lower prices. In this way, the plan encourages investors to buy low and sell high.

To apply this plan effectively, the investor must determine in advance the revision points or action points at which funds will be transferred to maintain the constant rupee value of the aggressive portfolio. These revision points should be selected carefully because they have a significant impact on investment returns. For example, the investor may decide to revise the portfolio whenever the value of the aggressive portfolio changes by 10%, 15%, or 20% above or below its original value.

Example of Constant Rupee Value Plan:

1. Initial Setup:

- ◇ Aggressive Portfolio (Equity Shares): ₹50,000
- ◇ Defensive Portfolio (Bonds): ₹50,000
- ◇ Share Price: ₹40 per share (buy 1250 shares)

2. When Share Prices Rise:

- ◇ New Share Price: ₹45
- ◇ New Value of Aggressive Portfolio: ₹56,250 (1250 shares × ₹45)
- ◇ Action: Sell shares to reduce the aggressive portfolio value back to ₹50,000.
- ◇ Proceeds from Sale: ₹6,250 (to be invested in the defensive portfolio).

3. When Share Prices Fall:

New Share Price: ₹32

- ◇ New Value of Aggressive Portfolio: ₹40,000 (1250 shares × ₹32)
- ◇ Action: Buy more shares to increase the aggressive portfolio value back to ₹50,000.
- ◇ Funds Needed: ₹10,000 (raised by selling part of the defensive portfolio).



2. Constant Ratio Plan

The Constant Ratio Plan is a formula plan in which the investor maintains a fixed ratio between the aggressive portfolio (equity shares) and the defensive portfolio (bonds/debentures). The investor first decides the desired allocation, such as 60% in equity and 40% in bonds, and maintains this ratio over time.

As market prices change, the values of the two portfolios also change, causing the original ratio to deviate. The investor then rebalances the portfolio to restore the predetermined ratio. If the value of equity increases, some shares are sold, and the proceeds are invested in bonds. If the value of equity decreases, a portion of the bonds is sold to purchase additional shares.

Thus, the Constant Ratio Plan helps maintain the desired level of risk while encouraging investors to sell when prices are high and buy when prices are low.

How It Works

1. Decide the target ratio (e.g., 60% equity and 40% bonds).
2. Invest according to the chosen ratio.
3. Monitor the portfolio as market prices fluctuate.
4. Rebalance the portfolio whenever the ratio changes:
 - ◇ Sell shares and buy bonds if equity exceeds the target ratio.
 - ◇ Sell bonds and buy shares if equity falls below the target ratio.

3. Variable Ratio Plan

The Variable Ratio Plan is a portfolio revision strategy in which the investor changes the proportion of investments in aggressive assets (such as stocks) and defensive assets (such as bonds or fixed deposits) based on market conditions. Unlike the Constant Ratio Plan, the allocation between the two asset classes is not fixed. When the stock market rises, the investor sells some stocks and increases the investment in defensive assets to protect the gains earned. Conversely, when the market falls, the investor purchases more stocks at lower prices, increasing the proportion of aggressive assets in the portfolio with the expectation of higher future returns.

For example, suppose an investor has a portfolio of ₹1,00,000, with 60% in stocks (₹60,000) and 40% in bonds (₹40,000). If the stock market rises significantly, the investor may sell some stocks and revise the allocation to 50% stocks and 50% bonds to reduce risk. Later, if the market declines, the investor may buy additional stocks using part of the bond investment, changing the allocation to 70% stocks and 30% bonds. Since this strategy relies on correctly anticipating market movements, it requires sound market analysis and is most suitable for markets that experience frequent fluctuations.

4. Rupee Cost Averaging (RCA)

Rupee Cost Averaging (RCA) is a passive investment strategy in which an investor invests a fixed amount of money at regular intervals, regardless of changes in market prices. Because the investment amount remains constant, the investor buys more units

when prices are low and fewer units when prices are high. As a result, the average cost of purchasing the investment is reduced over time, minimizing the impact of short-term market fluctuations. This strategy promotes disciplined investing and eliminates the need to predict the best time to invest.

For example, if an investor invests ₹5,000 every month in a mutual fund, they may purchase 100 units when the price is ₹50 per unit, 125 units when the price falls to ₹40, and 200 units when the price drops to ₹25. When prices rise again, the same ₹5,000 will buy fewer units. Over time, the investor accumulates more units at lower prices, reducing the average cost per unit. Thus, Rupee Cost Averaging is particularly suitable for long-term investors who want to reduce the risk associated with market fluctuations while building wealth gradually.

6.1.6 Merits of Portfolio Revision

Portfolio revision helps investors keep their investment portfolio aligned with their financial goals, risk tolerance, and changing market conditions. It ensures that the portfolio remains balanced and improves the chances of achieving better returns while managing risk effectively. Benefits of portfolio revision include:

1. Maintains Desired Asset Allocation

Portfolio revision helps restore the original proportion of investments in different asset classes, such as stocks and bonds, when market fluctuations alter their values. This keeps the portfolio aligned with the investor's planned investment strategy.

2. Reduces Risk

Regular revision prevents excessive concentration in a particular security, sector, or asset class. By rebalancing the portfolio, investors can control risk and avoid overexposure to highly volatile investments.

3. Improves Return Potential

Portfolio revision allows investors to replace underperforming securities with better-performing or more promising investments. This enhances the possibility of earning higher returns over the long term.

4. Keeps the Portfolio Aligned with Investment Goals

An investor's financial objectives, risk tolerance, and investment horizon may change over time. Portfolio revision ensures that the investment mix continues to match these changing needs and objectives.

5. Adapts to Changing Market Conditions

Economic conditions, interest rates, inflation, and company performance change over time. Revising the portfolio enables investors to respond to these changes and make informed investment decisions.



6. Maintains Proper Diversification

Portfolio revision helps preserve a well-diversified portfolio by ensuring investments remain spread across different asset classes, industries, or sectors, thereby reducing overall investment risk.

6.1.7 Demerits of Portfolio Revision

Portfolio revision, although essential for maintaining an effective investment portfolio, also has certain limitations. The major disadvantages of portfolio revision are listed below.

1. Involves Transaction Costs

Frequent buying and selling of securities result in brokerage fees, transaction charges, and other costs. These expenses can reduce the overall return on investment.

2. May Increase Tax Liability

Selling investments during portfolio revision may generate capital gains, which are subject to taxation. This can reduce the investor's net returns, especially if revisions are frequent.

3. Requires Continuous Monitoring

Effective portfolio revision demands regular tracking of market movements, economic conditions, and individual security performance. This requires considerable time, effort, and investment knowledge.

4. Possibility of Incorrect Decisions

If portfolio revisions are based on inaccurate analysis or poor market predictions, investors may sell profitable investments too early or buy unsuitable securities, leading to losses.

5. Emotional Bias May Affect Decisions

Investors may revise their portfolios due to fear during market declines or greed during market booms rather than objective analysis. Such emotional decisions often reduce long-term investment performance.

6. Risk of Overtrading

Excessive portfolio revision may lead to unnecessary trading, increasing costs and reducing overall returns. Frequent changes can also prevent investors from benefiting from the long-term growth of quality investments.

Recap

- ◇ Portfolio revision is the process of modifying an existing portfolio to maintain the desired risk-return balance and achieve investment objectives.
- ◇ Need for portfolio revision arises due to changes in market conditions, investment objectives, risk tolerance, liquidity needs, and availability of additional funds.
- ◇ Factors affecting portfolio revision include changes in investment goals, risk profile, market conditions, security performance, economic and political factors, liquidity requirements, and asset allocation drift.
- ◇ Portfolio revision strategies are broadly classified into Active Revision Strategy and Passive Revision Strategy
- ◇ In an active revision strategy, frequent portfolio adjustments are made based on market analysis to outperform the market.
- ◇ Passive Revision Strategy involves Periodic revisions based on pre-determined rules (formula plans) without attempting to predict market movements.
- ◇ Formula plans provide a systematic approach to portfolio revision by reducing emotional investment decisions and encouraging investors to buy low and sell high.
- ◇ Constant Rupee Value Plan maintains the aggressive portfolio at a fixed monetary value by transferring funds between aggressive and defensive portfolios.
- ◇ Constant Ratio Plan maintains a fixed ratio between aggressive and defensive investments through periodic portfolio rebalancing.
- ◇ Variable Ratio Plan changes the ratio between aggressive and defensive investments according to market conditions to maximize returns and control risk.
- ◇ Rupee Cost Averaging (RCA) involves investing a fixed amount at regular intervals, enabling investors to buy more units when prices are low and fewer units when prices are high.

Objective Questions

1. Which strategy involves frequent portfolio adjustments?
2. What are the systematic methods used in passive portfolio revision called?
3. Which formula plan maintains a fixed proportion between aggressive and defensive portfolios?
4. Name the strategy that assumes that securities may be mispriced?
5. Which type of portfolio mainly consists of bonds and debentures?
6. What is the main objective of portfolio revision?
7. RCA stands for

Answers

1. Active Revision Strategy
2. Formula plans
3. Constant Ratio Plan
4. Active revision strategy
5. Defensive portfolio
6. To maintain the desired risk-return balance.
7. Rupee Cost Averaging

Self-Assessment Questions

1. What is portfolio revision?
2. Discuss the need for portfolio revision.
3. Explain the Constant Ratio Plan with a suitable example.
4. Differentiate between the Constant Rupee Value Plan and the Constant Ratio Plan.
5. What are the factors that necessitate portfolio revision?
6. "The objective of Rupee Cost Averaging is to minimize the impact of market volatility on investment decisions. Justify the statement."
7. Evaluate the merits and demerits of portfolio revision in investment management.
8. Compare active and passive portfolio revision strategies with suitable examples.

Assignments

1. Ms.Riya invested ₹5,00,000 in a portfolio with 60% in equity shares and 40% in bonds. After one year, the value of her equity investments increased significantly, changing the portfolio allocation to 75% equity and 25% bonds. Answer the following -
 - a. Why does Ms.Riya need to revise her portfolio?
 - b. Which portfolio revision strategy would be suitable in this situation? Justify your answer.
 - c. How can portfolio revision help maintain the desired risk-return balance?
2. Discuss the role of formula plans in reducing emotional investment decisions.
3. Evaluate the advantages and limitations of Rupee Cost Averaging as a passive investment strategy

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Unit 2

Portfolio Performance Evaluation

Learning Outcomes

After completing this unit, the learner will be able to;

- ◇ explain the concept and objectives of portfolio evaluation
- ◇ comprehend the need for portfolio evaluation
- ◇ describe various performance evaluation ratios
- ◇ differentiate the need for portfolio rebalancing based on changes in asset allocation and market conditions

Prerequisite

Mr.Rahul, a 30-year-old software engineer, invested ₹5,00,000 by allocating 60% to equity mutual funds and 40% to debt funds. His goal was to build wealth over the next 15 years while keeping risk at a moderate level.

After three years, the stock market performed exceptionally well. As a result, the value of Mr.Rahul's equity investments increased significantly, and his portfolio now consisted of 75% equities and 25% debt. Although Rahul was pleased with the higher returns, he was unaware that his portfolio had become riskier than he had originally planned.

Mr.Rahul decided to review his portfolio. He compared its returns with market benchmarks, examined the level of risk, checked whether the portfolio was still well diversified, and found that the original asset allocation had changed. Based on this evaluation, he sold a portion of his equity investments and invested the proceeds in debt funds, restoring the portfolio to its original 60:40 allocation.

This example shows that earning high returns alone does not indicate that a portfolio is performing well. Investors must

regularly evaluate their portfolios to assess performance, measure risk, maintain diversification, and identify the need for rebalancing. Portfolio evaluation helps ensure that investments remain aligned with an investor's financial goals and risk tolerance despite changing market conditions.

Keywords

Portfolio evaluation, Portfolio rebalancing, Sharpe Ratio , Treynor Ratio, Jensen's Performance Index

Discussion

6.2.1 Portfolio Evaluation

Portfolio evaluation is an essential part of investment management. It involves assessing how well an investment portfolio is performing, the level of risk it carries, and whether it continues to meet the investor's financial goals. The main objective is to ensure that the portfolio generates satisfactory returns while maintaining an acceptable level of risk. Regular evaluation helps investors determine whether their investment strategy is effective and whether any changes are required.

The first step in portfolio evaluation is to compare the portfolio's actual performance with its expected objectives or a suitable benchmark. Performance is measured using indicators such as total return, Compound Annual Growth Rate (CAGR), and risk-adjusted return measures like the Sharpe Ratio. Along with returns, it is equally important to assess the level of risk associated with the portfolio. Common risk measures include standard deviation, beta, and Value at Risk (VaR). These measures help investors understand the portfolio's volatility and decide whether to continue holding, buy, or sell particular investments.

Portfolio evaluation also examines the portfolio's diversification and asset allocation. A well-diversified portfolio spreads investments across different asset classes, industries, and regions, reducing the overall level of risk. Proper diversification limits the impact of poor performance in any one investment or sector. During evaluation, investors can identify whether the portfolio has become too heavily concentrated in a particular asset or industry and take corrective action if necessary.

Another important purpose of portfolio evaluation is to determine whether the portfolio needs rebalancing. Over time, changes in market prices can alter the original asset allocation. For example, if stock prices rise significantly, the proportion of equities in the portfolio may become higher than intended, increasing the overall risk. Rebalancing involves selling some of the assets that have increased in value and investing the proceeds in underweighted assets to restore the desired allocation.



Regular portfolio evaluation and rebalancing help maintain the portfolio's risk-return balance and keep it aligned with the investor's financial objectives. In addition, factors such as tax implications, liquidity needs, and changing market conditions should also be considered to improve the effectiveness of portfolio management.

6.2.2 Need for Portfolio Evaluation

Portfolio evaluation is essential to assess whether an investment portfolio is achieving its financial objectives and delivering the expected returns. It helps investors measure performance, identify strengths and weaknesses, and make informed decisions for improving future investment outcomes. The significance of portfolio evaluation is explained below-

1. To Monitor Portfolio Performance

Portfolio evaluation helps investors determine whether their investments are generating the expected returns and meeting the objectives for which the portfolio was created. It enables comparison of the portfolio's performance with relevant market benchmarks and identifies whether the investment strategy is producing satisfactory results. Regular performance assessment also helps detect underperforming securities that may require replacement.

2. To Ensure Alignment with Financial Goals and Risk Tolerance

Investors' financial goals, investment horizons, and risk preferences may change over time due to factors such as age, income, or financial responsibilities. Portfolio evaluation ensures that the existing investment mix continues to match these changing objectives and risk tolerance. This helps investors remain focused on achieving their long-term financial goals without taking unnecessary risks.

3. To Adapt to Changing Market Conditions

Financial markets are constantly influenced by changes in economic conditions, interest rates, inflation, government policies, and investor sentiment. These changes can significantly affect the value and performance of investments. Regular portfolio evaluation helps investors understand the impact of such market developments and make timely adjustments to protect their investments and take advantage of new opportunities.

4. To Facilitate Portfolio Rebalancing

Market movements often cause the proportion of different asset classes in a portfolio to change from the original allocation. For example, during a stock market rally, the value of equity investments may increase, making the portfolio riskier than intended. Portfolio evaluation identifies such deviations and indicates when rebalancing is required to restore the desired asset allocation and maintain the appropriate level of risk.

5. To Manage Risk through Diversification

Portfolio evaluation helps assess whether investments are adequately diversified across different asset classes, industries, sectors, or geographical regions. Proper diversification reduces the impact of poor performance in any single investment and minimises unsystematic risk. It also prevents excessive concentration of investments in a particular sector or asset class.

6. To Improve Tax and Liquidity Management

Regular evaluation enables investors to make tax-efficient investment decisions by planning the purchase or sale of securities in a manner that minimises tax liabilities, particularly capital gains tax. It also helps assess whether the portfolio contains sufficient liquid assets to meet short-term financial obligations or unexpected cash requirements without disturbing long-term investment plans.

7. To Support Better Investment Decisions and Wealth Creation

Portfolio evaluation provides valuable information for revising, retaining, or replacing investments based on their current performance and future prospects. It ensures that the portfolio remains consistent with the investor's overall strategy, optimises the balance between risk and return, and increases the likelihood of achieving long-term wealth creation and financial security.

6.2.3 Benchmarks for Portfolio Evaluation

A benchmark is a standard or reference point used to assess the performance of an investment portfolio. It enables investors to compare the portfolio's returns with an appropriate standard to determine whether the investment objectives have been achieved and whether the portfolio manager has generated satisfactory performance.

1. Market Index Benchmark

A market index benchmark is the most commonly used benchmark for portfolio evaluation. It compares the return of a portfolio with the return of a broad market index that represents the overall performance of a particular market or market segment.

For example, an Indian equity portfolio may be compared with the NIFTY 50 or BSE Sensex, while a U.S. equity portfolio may be compared with the S&P 500. If the portfolio earns a return higher than the selected index during the same period, it indicates that the portfolio has outperformed the market. Conversely, if the portfolio's return is lower than the benchmark, it suggests underperformance. Since market indices reflect the movement of a large number of securities, they provide a reliable reference for evaluating broadly diversified portfolios.

2. Customized (Normal) Benchmark

A customized benchmark, also known as a normal portfolio, is designed specifically to reflect the investment objectives, risk tolerance, and asset allocation of a particular investor or portfolio. Unlike a market index, it is tailored to match the characteristics of the portfolio being evaluated.



For example, if an investor's target asset allocation is **60% equity, 30% bonds, and 10% gold**, a benchmark is constructed using the same allocation. The portfolio's actual performance is then compared with the return of this benchmark portfolio. Since it closely matches the investment strategy and objectives, a customized benchmark provides a more meaningful evaluation, particularly for institutional investors, pension funds, and portfolios with unique investment policies.

3. Peer Group Benchmark

A **peer group benchmark** evaluates a portfolio by comparing its performance with that of other portfolios having similar investment objectives, risk profiles, and investment strategies. Rather than comparing with the overall market, the portfolio is assessed against comparable portfolios managed by other investment managers.

For example, the performance of a large-cap equity mutual fund is compared with other large-cap equity mutual funds rather than with debt or hybrid funds. This comparison helps investors determine whether the portfolio manager has performed better or worse than similar managers operating under comparable market conditions. Peer group benchmarking is widely used in evaluating mutual funds, pension funds, and professionally managed investment portfolios.

4. Risk-Free Rate Benchmark

The **risk-free rate benchmark** uses the return on a risk-free investment as the reference point for evaluating portfolio performance. The return on short-term government treasury securities is generally considered the risk-free rate because these securities carry negligible default risk.

The risk-free rate represents the minimum return an investor expects before taking any investment risk. A portfolio should generate returns that exceed the risk-free rate to justify the additional risk undertaken. This benchmark forms the basis for several risk-adjusted performance measures such as the Sharpe Ratio, Treynor Ratio, and Jensen's Alpha, which evaluate whether the portfolio has earned adequate returns relative to the level of risk assumed.

5. Strategic Asset Allocation Benchmark

A **strategic asset allocation benchmark** measures portfolio performance against a benchmark constructed according to the portfolio's target allocation among different asset classes. It focuses on whether the portfolio has achieved returns consistent with its long-term investment policy.

For example, suppose a portfolio has a target allocation of **70% equity, 20% bonds, and 10% gold**. A benchmark portfolio is created using these same proportions, and its return is calculated based on the performance of each asset class. The actual portfolio return is then compared with the benchmark return. This benchmark helps determine whether the portfolio manager has added value through investment decisions while maintaining the desired asset allocation strategy. It is particularly useful for balanced portfolios and institutional investment funds.

Each benchmark serves a different purpose in portfolio evaluation. Market index benchmarks compare portfolio performance with the overall market, customized benchmarks reflect investor-specific objectives, peer group benchmarks compare similar portfolios, the risk-free rate provides a minimum standard for risk-adjusted evaluation, and strategic asset allocation benchmarks assess performance against the portfolio's target asset mix. Selecting an appropriate benchmark ensures a fair and meaningful assessment of portfolio performance.

6.2.4 Evaluation of Portfolio Returns

Risk-Adjusted Returns

Portfolio performance should be evaluated not only based on the returns generated but also by considering the level of risk undertaken to achieve those returns. Risk-adjusted return measures the return earned for each unit of risk assumed by the investor, providing a more meaningful assessment of investment performance.

Investors can earn a risk-free rate of return by investing in securities such as government treasury securities, which are considered virtually free from default risk. Any return earned above this risk-free rate is known as the risk premium, which represents the additional compensation received for bearing investment risk.

Risk-adjusted performance is calculated by dividing the risk premium by an appropriate measure of risk. This enables investors to compare portfolios with different levels of risk on a common basis. Portfolios that generate higher returns for each risk unit are considered to have performed better than those that earn similar returns while assuming greater risk. Therefore, risk-adjusted return measures help investors identify portfolios that provide the most efficient balance between risk and return.

Two methods of measuring the reward per unit of risk have been proposed by William Sharpe and Jack Treynor, respectively, in their pioneering work on evaluation of portfolio performance

6.2.5 Sharpe Ratio (Reward-to-Variability Ratio)

The Sharpe Ratio, developed by William F. Sharpe, is one of the most widely used measures of risk-adjusted portfolio performance. It evaluates the excess return earned by a portfolio for each unit of total risk, where total risk is measured by the standard deviation of portfolio returns.

The Sharpe Ratio helps investors determine whether a portfolio's returns are the result of efficient investment management or simply a consequence of taking higher levels of risk. It is particularly useful when comparing portfolios that differ in their overall risk levels.

The Sharpe Ratio is calculated using the following formula:

Sharpe ratio (SR) = $\frac{\text{Portfolio return} - \text{Risk-free rate}}{\text{Standard deviation of portfolio return}}$



Where:

- ◇ Portfolio Return = Average return earned by the portfolio during a specified period.
- ◇ Risk-Free Rate = Return available on a risk-free investment, usually government securities.
- ◇ Standard Deviation = Measure of the total variability or volatility of portfolio returns.

A higher Sharpe Ratio indicates that the portfolio generates greater excess return for each unit of total risk and therefore reflects superior risk-adjusted performance. Conversely, a lower Sharpe Ratio suggests that the additional returns earned may not adequately compensate for the level of risk undertaken.

The Sharpe Ratio is particularly useful for evaluating and comparing portfolios that are not fully diversified because it considers total risk, including both systematic and unsystematic risk.

6.2.6 Treynor Ratio (Reward-to-Volatility Ratio)

The Treynor Ratio, developed by Jack Treynor, is another important measure of risk-adjusted portfolio performance. Unlike the Sharpe Ratio, the Treynor Ratio evaluates the excess return earned by a portfolio relative to its systematic risk, which is measured by beta.

Since beta measures a portfolio's sensitivity to market movements, the Treynor Ratio indicates how much additional return is generated for each unit of market risk assumed by the investor.

The Treynor Ratio is calculated as:

Treynor ratio (TR) = $\frac{\text{realised return on the portfolio} - \text{risk free rate of return}}{\text{portfolio beta}}$

Where:

- ◇ Portfolio Return = Actual return earned by the portfolio.
- ◇ Risk-Free Rate = Return on a risk-free investment.
- ◇ Portfolio Beta = Measure of the portfolio's systematic risk relative to the market.

A higher Treynor Ratio indicates that the portfolio has generated greater excess return for each unit of systematic risk and therefore demonstrates better performance. Since it considers only systematic risk, the Treynor Ratio is most appropriate for evaluating well-diversified portfolios, where unsystematic risk has been largely eliminated through diversification.

6.2.7 Jensen's Performance Index (Jensen's Alpha)

The Jensen's Performance Index measure or ratio is another kind of risk-adjusted performance metric that Michel Jensen created. This ratio attempts to quantify the difference between a portfolio's actual return and the return that would be anticipated, given its degree of risk. The expected return on a portfolio is calculated using the CAPM model. It shows the expected return on a portfolio. It shows the expected return on a portfolio for the specified degree of risk.

The differential, or excess, return earned over and above what is required for a portfolio's level of systematic risk is measured by the difference between the return the portfolio actually earned and the return projected to be earned. The differential return is an indication of the portfolio manager's forecasting ability or managerial skill.

Using the CAPM model, the expected return of the portfolio can be calculated as follows:

$$E(R_p) = R_f + \beta_p (R_m - R_f)$$

$$E(R_p) = \text{Expected Portfolio Return}$$

$$R_f = \text{Risk free rate}$$

$$R_m = \text{Return on Market Index}$$

$$\beta_p = \text{Systematic risk of the portfolio}$$

The differential return is calculated using:

$$\alpha_p = R_p - E(R_p)$$

$$\alpha_p = \text{Differential return earned}$$

$$R_p = \text{Actual Return earned on the portfolio}$$

$$E(R_p) = \text{Expected Return}$$

Recap

- ◇ Portfolio evaluation is necessary to assess whether a portfolio has achieved its investment objectives by generating adequate returns while considering the level of risk assumed.
- ◇ Benchmarks provide a standard of comparison for evaluating portfolio performance against market performance, peer portfolios, or predetermined investment objectives.
- ◇ Different types of benchmarks include market index benchmarks, customized (normal) benchmarks, peer group benchmarks, risk-free rate benchmarks, and strategic asset allocation benchmarks.



- ◇ Risk-adjusted return measures evaluate portfolio performance by relating returns to the amount of risk undertaken, enabling meaningful comparison among portfolios.
- ◇ The Sharpe Ratio (Reward-to-Variability Ratio) measures the excess return earned per unit of total risk, using standard deviation as the measure of risk.
- ◇ The Treynor Ratio (Reward-to-Volatility Ratio) measures the excess return earned per unit of systematic risk, using beta as the risk measure.
- ◇ Jensen's Performance Index (Jensen's Alpha) measures the excess return earned by a portfolio over its expected return based on the Capital Asset Pricing Model (CAPM), reflecting the portfolio manager's performance.

Objective Questions

1. Portfolio evaluation primarily helps investors to:
2. Risk-adjusted return measures evaluate:
3. The Sharpe Ratio was developed by:
4. In the Sharpe Ratio, total risk is measured by
5. What is the risk premium?
6. What does the Treynor Ratio measure?
7. What is beta?
8. What is another name for Jensen's Performance Index?
9. Which model is used to calculate the expected return in Jensen's Alpha?
10. Which ratio considers only systematic risk?

Answers

1. Assess the performance and risk of a portfolio.
2. Return earned per unit of risk.
3. William F. Sharpe
4. Answer: Standard deviation
5. The excess return earned over the risk-free rate.
6. Excess return per unit of systematic risk.
7. A measure of a portfolio's sensitivity to market movements.
8. Jensen's Alpha.
9. Capital Asset Pricing Model (CAPM).
10. Treynor Ratio.

Self-Assessment Questions

1. What is meant by portfolio evaluation?
2. Why is portfolio evaluation important for investors?
3. Describe the different types of benchmarks used in portfolio evaluation.
4. Describe the concept of risk-adjusted return.
5. Explain how the Sharpe Ratio measures portfolio performance.
6. Discuss the significance of the Treynor Ratio in evaluating diversified portfolios.
7. Explain Jensen's Performance Index.
8. Distinguish between the Sharpe Ratio, Treynor Ratio, and Jensen's Performance Index with reference to their approach to measuring portfolio performance.

Assignments

1. Explain the concept of risk-adjusted return. Discuss why risk-adjusted measures provide a better evaluation of portfolio performance than absolute returns.
2. Explain the Sharpe Ratio, Treynor Ratio, and Jensen's Performance Index. Compare these measures with reference to their objectives, risk measures, and applications.
3. An investor has invested in two portfolios with similar annual returns but different levels of risk. Explain which portfolio would be considered better using the concepts of the Sharpe Ratio, Treynor Ratio, and Jensen's Performance Index. Justify your answer.

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Kollam, Kerala Pin- 691601, email: info@sgou.ac.in, www.sgou.ac.in Ph: +91 474 2966841

ISBN 978-81-688844-7-2



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