Security Analysis and Portfolio Management – V Sem BCom CA AB 2023 & 2024

1.1 Objectives of Investment

Safety of Capital
Regular Income
Capital Appreciation
Liquidity
Tax Benefits
Beating Inflation
Wealth Creation
Diversification

1.2 Investment vs Speculation

Meaning of Investment

Investment is putting money into assets like shares, real estate, mutual funds, fixed deposits, or gold with the expectation of earning returns over time.

Meaning of Speculation

Speculation involves buying and selling assets like stocks, currencies, or commodities based on price movements to make quick profits.

Purpose
Time Horizon
Risk Level
Income Expectation
Analysis and Research
Examples of Investment
Examples of Speculation
Ownership and Control
Market Impact

1.3 Security Investments Vs Non Security Investments

Meaning of Security Investments

Security investments refer to putting money into financial instruments that are traded in organised markets like stock exchanges.

Meaning of Non-Security Investments

Non-security investments are those made in physical assets or other forms of investment that are not traded in organised financial markets.

Market Participation
Ownership Rights
Risk and Return Profile
Liquidity
Regulation and Documentation
Examples of Security Investments
Examples of Non-Security Investments
Tax Considerations
Suitability

1.4 Investment Process

Meaning of Investment Process

The investment process refers to the step-by-step approach followed by individuals or organisations to plan, select, and manage investments to achieve financial goals.

Step 1: Identification of Investment Goals
Step 2: Assessing Risk Profile
Step 3: Selecting Investment Avenues
Step 4: Asset Allocation

Step 5: Investment Execution
Step 6: Monitoring and Review
Step 7: Portfolio Rebalancing
Step 8: Exit Strategy

1.5Sources of Investment Information

Meaning of Investment Information

Investment information refers to data, facts, and analysis that help individuals or organisations make informed investment decisions.

Financial Newspapers and Magazines
Television and News Channels
Stock Exchanges and Market Websites
Company Reports and Financial Statements
Research Reports from Financial Institutions
Regulatory Authorities
Financial Advisors and Experts
Online Portals and Mobile Apps
Social Media and Investor Forums

1.6Primary Markets

Meaning of Primary Market

The primary market is the market where new securities such as shares, debentures, or bonds are issued to investors for the first time.

Purpose of Primary Market

The primary market helps companies raise funds for expansion, new projects, debt repayment, or other business needs.

Methods of Raising Funds
Initial Public Offering (IPO)
Rights Issue
Private Placement
Features of Primary Market

The primary market involves the direct transfer of funds from investors to the company or government issuing the securities.

Participants in Primary Market

Participants include issuing companies, investment banks, underwriters, regulatory authorities, and investors.

1.7 Secondary Market

Meaning of Secondary Market

The secondary market is where investors buy and sell securities like shares, bonds, or debentures after they have been issued in the primary market.

Role of Secondary Market

The secondary market provides liquidity to investors, allowing them to sell their investments whenever needed.

Stock Exchanges

Major stock exchanges include platforms where buyers and sellers interact to trade securities. Stock exchanges ensure fair pricing, transparency, and smooth transactions for all investors.

Types of Secondary Market

The secondary market is broadly divided into two segments—equity markets and debt markets. Equity markets deal with the buying and selling of shares, while debt markets involve trading bonds and debentures.

Functions of Secondary Market
Market Participants
Price Fluctuations
Speculation and Investment

2.1 Meaning and measurement of security returns

Meaning of Security Returns

Security returns refer to the income or profit an investor earns from investing in securities such as shares, bonds, debentures, or mutual funds.

Types of Security Returns

There are two main types of returns: income returns and capital gains.

Total Return Concept

Total return includes both income earned and capital gains or losses over a specific period.

Formula for Measuring Return

The general formula for measuring returns is:
Return (%) = [(Income + Price Change) ÷ Initial Investment] × 100
Income includes dividends or interest, and price change refers to the difference between the selling and purchase price of the security.

Holding Period Return (HPR)
Annualised Return
Real Return vs. Nominal Return
Risk and Return Relationship
Risk-Adjusted Return

2.2 Types of Systematic Risks

Meaning of Systematic Risk

Systematic risk refers to the unavoidable risk that affects the entire financial market or economy.

1. Market Risk
2. Interest Rate Risk
3. Inflation Risk (Purchasing Power Risk)
4. Recession or Economic Risk
5. Political and Regulatory Risk
6. Global or Event-Driven Risk

Interconnection of Systematic Risks
Managing Systematic Risks

2.3 Types of Unsystematic Risks

Meaning of Unsystematic Risk

Unsystematic risk is the risk that affects a specific company, industry, or sector and does not impact the entire market.

1. Business Risk
2. Financial Risk
3. Operational Risk
4. Legal and Regulatory Risk
5. Technological Risk
6. Competitive Risk

7. Strategic Risk
8. Management Risk
Reducing Unsystematic Risks

2.4 Measuring Total Risk

Meaning of Total Risk

Total risk represents the overall uncertainty or variability in the returns of an investment. It includes both systematic risks (market-wide factors) and unsystematic risks (company or industry-specific factors).

Need for Measuring Total Risk

Methods of Measuring Total Risk

1. Standard Deviation

Standard deviation is the most widely used method for measuring total risk.

Formula:
$\sigma = \sqrt{(\Sigma (Ri - \bar{R})^2 / N)}$
Where:

- Ri = Return in each period
- $\bar{R}$ = Average return
- N = Number of observations

2. Variance

Variance is another method to measure total risk.

Formula:
Variance = $\Sigma (Ri - \bar{R})^2 / N$

3. Range of Returns

4. Coefficient of Variation (CV)

CV is used to compare risk across different investments.

Formula:
CV = Standard Deviation ÷ Average Return

5. Beta (for Systematic Risk)

While Beta measures only market-related risk, it helps assess how much an investment's returns move relative to the market.

3.1 Economy Analysis

Meaning of Economy Analysis

Economy analysis is the process of studying the overall economic environment to understand its impact on businesses, industries, and investment decisions.

Purpose of Economy Analysis

The main purpose of economy analysis is to evaluate whether the present economic conditions are favourable for investments, business expansion, and market growth.

Key Factors Considered in Economy Analysis

1. Gross Domestic Product (GDP)
2. Inflation Rate
3. Interest Rates
4. Employment Levels
5. Exchange Rates
6. Government Policies
7. Global Economic Conditions

3.2 Industry Analysis

Meaning of Industry Analysis

Industry analysis is the process of evaluating a specific sector or group of companies that produce similar goods or services.

Purpose of Industry Analysis

The main objective of industry analysis is to assess whether a particular industry is attractive for investment or business operations.

Key Factors Considered in Industry Analysis

1. Industry Life Cycle
2. Market Size and Growth Rate
3. Competition Level
4. Regulatory Environment
5. Technological Factors
6. Entry and Exit Barriers
7. Profitability and Margins
8. Global Trends and Economic Impact

3.3 Company Analysis

Meaning of Company Analysis

Company analysis is the process of evaluating a company's financial health, operational efficiency, growth potential, and competitive position to assess its suitability for investment.

Purpose of Company Analysis

The main purpose of company analysis is to determine the true worth of a company, identify growth opportunities, assess risks, and predict future performance.

Key Aspects of Company Analysis

1. Financial Statement Analysis
2. Profitability Analysis
    - Earnings Per Share (EPS)
    - Net Profit Margin
    - Return on Equity (ROE) `
3. Liquidity and Solvency
4. Growth Potential
5. Competitive Position
6. Management Efficiency
7. Dividend Policy
8. Risk Factors

3.4 Intrinsic Value

Meaning of Intrinsic Value

Intrinsic value refers to the actual or true worth of a security, asset, or investment, based on its fundamental characteristics.

Importance of Intrinsic Value

Intrinsic value helps investors determine whether a security is fairly priced, overvalued, or undervalued.

Factors Considered in Calculating Intrinsic Value

1. Earnings and Cash Flows
2. Growth Potential
3. Assets and Liabilities

4. Industry and Economic Conditions

Methods of Calculating Intrinsic Value

1. Discounted Cash Flow (DCF) Method

DCF involves estimating future cash flows from the business and discounting them to present value using an appropriate discount rate.

2. Dividend Discount Model (DDM)

For companies that pay regular dividends, the present value of expected future dividends is calculated to find the intrinsic value.

3. Asset-Based Valuation

This method adds the net value of company assets after deducting liabilities to determine intrinsic value, useful for asset-heavy businesses.

3.5 Valuation of Bonds

Meaning of Bond Valuation

Bond valuation is the process of determining the fair or intrinsic value of a bond based on its expected future cash flows.

Purpose of Bond Valuation

The main purpose of bond valuation is to calculate the present value of the bond's future payments, including periodic interest (coupon payments) and the principal repayment at maturity.

Key Components in Bond Valuation

1. Face Value (Par Value)
2. Coupon Rate
3. Time to Maturity
4. Required Rate of Return (Discount Rate)

Bond Valuation Formula

The value of a bond is calculated using the formula:

Bond Price = (C × [1 - (1 + r)^-n] ÷ r) + (F ÷ (1 + r)^n)

Where:

- C = Annual coupon payment
- r = Required rate of return
- n = Number of years to maturity
- F = Face value of the bond

Factors Affecting Bond Valuation

1. Interest Rate Movements
2. Credit Rating of Issuer
3. Time to Maturity

3.6 Valuation of Preference Shares

Meaning of Preference Shares

Preference shares are a type of hybrid security that offers fixed dividends to shareholders and have preferential rights over equity shares in terms of dividend payment and capital repayment during liquidation.

Types of Preference Shares

1. Perpetual (Irredeemable) Preference Shares
2. Redeemable Preference Shares

Valuation of Perpetual Preference Shares

The formula for valuing perpetual preference shares is:

Value = D ÷ r

Where:

- D = Annual fixed dividend
- r = Required rate of return

This is similar to valuing a perpetuity where dividends are assumed to continue forever.

Valuation of Redeemable Preference Shares

The value of redeemable preference shares is calculated using:

Value = (D × [1 - (1 + r)^-n] ÷ r) + (F ÷ (1 + r)^n)

Where:

- D = Annual dividend
- r = Required rate of return
- n = Years to maturity
- F = Face value or redemption amount

Factors Affecting Valuation

1. Dividend Rate and Amount
2. Market Interest Rates
3. Creditworthiness of Issuer
4. Maturity Period for Redeemable Shares

3.7 Valuation of Equity Shares

Meaning of Equity Share Valuation

Equity share valuation is the process of estimating the true or intrinsic value of a company's shares based on its financial performance, growth prospects, and market conditions.

Need for Valuation of Equity Shares

Equity share prices fluctuate in the stock market due to demand, supply, and investor sentiment. Valuation helps investors determine if a share is overvalued, undervalued, or fairly priced, ensuring informed investment decisions.

Methods of Valuing Equity Shares

1. Dividend Discount Model (DDM)

This method values shares based on the present value of expected future dividends. It is suitable for companies that pay regular dividends.

Formula:
Value per Share = D ÷ r

Where:

- D = Expected annual dividend
- r = Required rate of return

For growing dividends, the formula is:
Value = D1 ÷ (r - g)

Where:

- D1 = Dividend expected next year

- r = Required rate of return
- g = Growth rate of dividends

2. Price-to-Earnings (P/E) Ratio Method

P/E ratio compares the market price of a share with the company's earnings per share (EPS).

Formula:
Value per Share = EPS × P/E Ratio

This method reflects investor expectations and market sentiment about the company's profitability.

3. Net Asset Value (NAV) Method

NAV is based on the company's total assets minus liabilities, divided by the number of shares.

Formula:
NAV per Share = (Total Assets - Total Liabilities) ÷ Number of Shares

This method is common for companies with significant tangible assets.

4. Earnings Capitalisation Method

This method values shares by capitalising the company's earnings at the required rate of return.

Formula:
Value per Share = EPS ÷ r

Where r is the investor's expected return.

Factors Affecting Equity Share Valuation

1. Company Performance
2. Industry and Market Trends
3. Dividend Policy
4. Economic Environment

4.1 Concept of Technical Analysis

Technical analysis is a method used to evaluate and forecast the price movements of securities by analysing historical market data, mainly price and volume.

Advantages of Technical Analysis

✔ Quick Decision Making
✔ Focus on Timing
✔ Applicable Across Markets
✔ Visual Simplicity
✔ Suitable for Short-Term Trading
✔ Market Sentiment Analysis

Limitations of Technical Analysis

✖ Not Always Accurate
✖ Subjectivity in Interpretation
✖ Limited Use for Long-Term Investors
✖ Dependence on Historical Data
✖ False Signals Possible

4.2 Tools of Technical Analysis

Common Tools of Technical Analysis

1. Price Charts

Price charts visually represent the historical movement of securities. They are the most basic tool in technical analysis.

- **Line Charts:**
- **Bar Charts:**
- **Candlestick Charts:**

2. Trendlines and Channels

Trendlines are straight lines drawn on price charts connecting highs or lows, indicating the direction of the market trend.

3. Support and Resistance Levels

Support is the price level where demand is strong enough to prevent the price from falling further. Resistance is the price level where selling pressure prevents further price increases.

4. Moving Averages

Moving averages smoothen price data to identify the underlying trend.

- **Simple Moving Average (SMA):**
- **Exponential Moving Average (EMA):**
- Crossovers of moving averages signal potential trend changes.

5. Momentum Indicators

These indicators measure the speed and strength of price movements.

- **Relative Strength Index (RSI):**
- **Moving Average Convergence Divergence (MACD):**

6. Volume Analysis

Volume reflects the number of shares or contracts traded. Increasing volume confirms price trends, while decreasing volume may indicate trend weakening.

7. Chart Patterns

Patterns like Head and Shoulders, Double Tops and Bottoms, Triangles, and Flags provide insights into potential trend reversals or continuations.

4.3 Technical Analysis Vs Fundamental Analysis

1. Meaning

- **Technical Analysis** focuses on studying historical price movements, trading volume, and chart patterns to predict future price behaviour.
- **Fundamental Analysis** involves evaluating a company's financial statements, earnings, industry position, and economic factors to estimate its true intrinsic value.

2. Focus Area
3. Time Horizon
4. Tools Used
5. Approach to Valuation
6. Market Sentiment
7. Data Considered
8. Advantages
9. Limitations

4.4 Efficient Market Hypothesis and Forms of Market Efficiency

Meaning of Efficient Market Hypothesis (EMH)

According to EMH, prices of securities adjust quickly and accurately to new information. Since all known information is already priced in, only new, unexpected information can cause price changes.

Types of Market Efficiency

1. Weak Form Efficiency

- Prices reflect all past trading information like price history and volumes.
- Technical analysis cannot provide consistent excess returns.
- Fundamental analysis may still offer opportunities in weak form efficient markets.

2. Semi-Strong Form Efficiency

- Prices reflect all publicly available information, including financial reports, news, and economic data.
- Neither technical nor fundamental analysis can consistently beat the market.
- Only new, unexpected information impacts prices.

3. Strong Form Efficiency

- Prices reflect all information, both public and private (insider information).
- No one, including company insiders, can consistently earn excess returns.
- Most markets do not fully meet this level of efficiency in practice.

5.1 Portfolio Models - Markowitz Model

Concept of Markowitz Model (Modern Portfolio Theory)

The Markowitz Model, developed by Harry Markowitz in 1952, is considered the foundation of Modern Portfolio Theory (MPT). It explains how investors can build an optimal portfolio by combining different securities to maximise returns while minimising overall risk.

Key Principles of the Markowitz Model

✔ Risk and return should be considered together, not in isolation.
✔ Diversification reduces unsystematic risk in the portfolio.
✔ Investors are rational and prefer higher returns for a given level of risk.
✔ Portfolios should be constructed based on statistical relationships like correlation between securities.

Risk and Return in the Model

- **Expected Return:** The weighted average of the expected returns of individual securities in the portfolio.
- **Portfolio Risk:** Measured using standard deviation, considering not only individual security risks but also how securities interact (correlation).

When securities with different risk-return characteristics are combined, the overall portfolio risk can be lower than the individual risks.

Assumptions of the Markowitz Model

✔ Investors are risk-averse and seek to maximise returns for a given risk level.
✔ Returns follow a normal distribution.
✔ Investors make decisions based on expected return and standard deviation

(risk).
✔ Perfect markets exist, with no transaction costs or taxes.

5.2 Efficient Frontier

Concept of Efficient Frontier

The Efficient Frontier is a graphical representation of all possible optimal portfolios that offer the best possible returns for a given level of risk or the lowest risk for a given level of return. It is a key concept from Modern Portfolio Theory, developed by Harry Markowitz.

Understanding the Efficient Frontier

The Efficient Frontier is plotted on a graph:

- The **X-axis** represents risk (measured by standard deviation).
- The **Y-axis** represents expected return.

The curve slopes upwards, showing that higher returns come with higher risk. All portfolios lying on the frontier are considered efficient, while those below the curve are inefficient because they offer lower returns for the same risk.

Inefficient vs. Efficient Portfolios

- Portfolios below the Efficient Frontier are not desirable as they provide lower returns for the risk taken.
- Portfolios on the frontier are optimal, providing the maximum return for each level of risk.
- Portfolios above the frontier are not achievable under normal market conditions.

Investor Choices along the Frontier

- **Risk-averse investors** prefer portfolios on the lower left of the frontier with low risk and modest returns.
- **Aggressive investors** may select portfolios towards the upper right, accepting higher risk for higher potential returns.

5.3 Sharpe Single Index Model

Concept of Sharpe's Single Index Model

Sharpe's Single Index Model, developed by William Sharpe, simplifies portfolio construction by assuming that the returns of a security are influenced mainly by the market index rather than multiple factors.

Return Equation of Single Index Model

The model expresses a security's return as:

$$\mathbf{Ri = \alpha i + \beta i \times Rm + ei}$$

Where:

- **Ri** = Return on security i
- **αi** = Alpha, security-specific return (independent of the market)
- **βi** = Beta, measures sensitivity to market movements
- **Rm** = Return on the market index
- **ei** = Unsystematic (firm-specific) risk

This shows that a security's return is a combination of market-related movements and individual company factors.

Components of Risk in the Model

✔ **Systematic Risk:** Related to market factors like economic changes, inflation, or interest rates, captured by Beta.
✔ **Unsystematic Risk:** Company-specific risk, such as management decisions or product performance, represented by ei.

5.4 Capital Asset Pricing Model

Concept of Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) explains the relationship between the expected return of an investment and its risk. It shows how much return an investor should expect by taking a specific level of risk, compared to a risk-free investment.

CAPM Formula

The basic CAPM formula is:

Expected Return (Ri) = Rf + βi × (Rm - Rf)

Where:

- **Ri** = Expected return on the security
- **Rf** = Risk-free return (usually from government securities)
- **βi (Beta)** = Sensitivity of the security to market movements
- **Rm** = Expected market return

CAPM states that investors should earn returns equal to the risk-free rate plus a premium for taking market risk.

Understanding Beta in CAPM

✔ **Beta > 1:** Security is more volatile than the market; higher potential returns and risk.
✔ **Beta < 1:** Security is less volatile than the market; lower returns and risk.
✔ **Beta = 1:** Security moves in line with the market.

Advantages of CAPM

✔ Provides a simple way to estimate expected returns.
✔ Helps in pricing risky assets and making investment decisions.
✔ Useful for calculating the cost of equity in corporate finance.
✔ Considers only systematic risk, which is relevant for diversified investors.

5.5 Concept of Performance Evaluation Using Sharpe Model

The Sharpe Model, developed by William Sharpe, is used to evaluate the performance of investment portfolios by considering both return and risk.

Sharpe Ratio Formula

Sharpe Ratio = (Rp - Rf) ÷ σp

Where:

- **Rp** = Return of the portfolio
- **Rf** = Risk-free return (usually from government securities)
- **σp** = Standard deviation of the portfolio (total risk)

A higher Sharpe Ratio indicates better risk-adjusted performance, showing that the portfolio earns more return for each unit of risk.

Interpretation of Sharpe Ratio

✔ **Higher Sharpe Ratio:** Indicates efficient portfolio management with better returns for the risk taken.
✔ **Lower Sharpe Ratio:** Suggests poor risk-adjusted performance.
✔ **Negative Sharpe Ratio:** Portfolio underperforms the risk-free return, considered undesirable.

Advantages of Sharpe Model for Performance Evaluation

✔ Measures both return and total risk together.
✔ Helps compare different portfolios on a risk-adjusted basis.
✔ Useful for evaluating portfolios with different sizes and compositions.
✔ Encourages investors to assess efficiency, not just raw returns.
✔ Widely accepted by fund managers, analysts, and investors.

5.6 Performance Evaluation using Treynor Model

Concept of Performance Evaluation Using Treynor Model

The Treynor Model, developed by Jack Treynor, is used to evaluate the performance of investment portfolios by considering systematic risk. Unlike the Sharpe Model, which uses total risk, the Treynor Model focuses only on market-related risk measured by Beta.

Treynor Ratio Formula

Treynor Ratio = (Rp - Rf) ÷ βp

Where:

- **Rp** = Return of the portfolio
- **Rf** = Risk-free return (e.g., from government securities)
- **βp** = Beta of the portfolio (systematic risk)

A higher Treynor Ratio indicates better performance adjusted for market risk.

Interpretation of Treynor Ratio

✔ **Higher Treynor Ratio:** Portfolio is generating higher returns for each unit of market risk taken.
✔ **Lower Treynor Ratio:** Portfolio performance is poor after adjusting for systematic risk.
✔ Treynor Ratio is effective only if the portfolio is well-diversified, as unsystematic risk is assumed to be eliminated.

Advantages of Treynor Model for Performance Evaluation

✔ Focuses only on systematic risk, which cannot be diversified away.
✔ Useful for comparing diversified portfolios, such as mutual funds or index funds.
✔ Helps distinguish between returns earned through market exposure and actual managerial skill.
✔ Simplifies risk assessment by using Beta, a widely accepted risk measure.

5.7 Concept of Jensen's Model (Jensen's Alpha)

Jensen's Model, developed by Michael Jensen, is a popular method for evaluating portfolio performance. It measures the abnormal return, known as **Alpha**, that a portfolio earns over and above the expected return predicted by the Capital Asset Pricing Model (CAPM).

Jensen's Alpha Formula

αp = Rp - [Rf + βp × (Rm - Rf)]

Where:

- **αp** = Jensen's Alpha (Abnormal return)
- **Rp** = Actual portfolio return
- **Rf** = Risk-free return
- **βp** = Portfolio Beta (systematic risk)
- **Rm** = Market return

Positive Alpha indicates the portfolio outperformed market expectations; negative Alpha shows underperformance.

Interpretation of Jensen's Alpha

✔ **Positive Alpha:** Portfolio manager generated returns beyond market predictions, showing superior management.
✔ **Zero Alpha:** Portfolio performed in line with market expectations; no abnormal performance.
✔ **Negative Alpha:** Portfolio underperformed after adjusting for market risk.

Advantages of Jensen's Model

✔ Accurately isolates managerial skill by considering systematic risk.
✔ Based on CAPM, a widely accepted financial model.
✔ Helps investors identify truly outperforming portfolios.
✔ Effective for comparing different investment managers or funds.

5.8 Portfolio Revision

Portfolio revision refers to the process of adjusting an existing investment portfolio by adding, removing, or rebalancing securities to align with changing market conditions, risk preferences, or investment objectives.

Need for Portfolio Revision

✔ Changes in market conditions like interest rates, inflation, or economic policies.
✔ Fluctuations in security prices affecting the original risk-return balance.
✔ Changes in the investor's income, financial goals, or risk appetite.
✔ Poor performance of specific securities in the portfolio.
✔ Introduction of better investment opportunities in the market.

Techniques of Portfolio Revision

1. Rebalancing the Portfolio
2. Switching Securities
3. Adding or Removing Assets

Advantages of Portfolio Revision

✔ Helps maintain the desired risk-return profile.
✔ Improves performance by eliminating weak assets.
✔ Adapts to changing market dynamics.
✔ Keeps the portfolio aligned with financial goals.
✔ Reduces unsystematic risk through better diversification.