

# FUNDAMENTALS OF INVESTMENT

Comprehensive Study Tutorial  
NEP 2020 | B.Com Programme

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# UNIT I

## Introduction to Investment

### 1.1 Meaning, Nature and Importance of Investment

**Investment** is the sacrifice of certain present value for the (possibly uncertain) future value. It involves the commitment of funds — money or other resources — to financial or real assets with the expectation of earning a positive future return in the form of income, capital gains, or both.

**F. Amling** defined investment as "the purchase by an individual or institutional investor of a financial or real asset that produces a return proportional to the risk assumed over some future investment period."

#### Nature of Investment:

- **Sacrifice of Present Consumption:** The investor gives up present purchasing power or present use of funds.
- **Time Element:** Investment is always for a future time period — short-term or long-term.
- **Return Expectation:** The primary motive is to earn a return — income and/or capital appreciation.
- **Risk Element:** All investments carry some degree of uncertainty about the future return.
- **Commitment of Funds:** Investment always involves committing money or resources to an asset or instrument.

#### Importance of Investment:

- **Wealth Creation:** Investing enables money to grow over time through compounding, far exceeding what mere saving achieves.
- **Inflation Hedge:** Returns from investment (especially equity) typically outpace inflation, preserving real purchasing power.
- **Retirement Security:** Systematic investment over a working career builds a corpus for a financially secure retirement.
- **Tax Benefits:** Many investment instruments (PPF, ELSS, NPS) offer deductions under Sections 80C, 80CCD, saving tax.
- **Economic Development:** When households invest, funds flow to businesses and government projects, financing productive economic activity.
- **Emergency Fund:** Liquid investments (liquid funds, short-term deposits) provide a financial cushion for unforeseen expenses.
- **Goal Achievement:** Specific investments can be linked to specific life goals — education, home purchase, marriage, retirement.

#### Investment vs. Speculation vs. Gambling:

These three concepts are frequently confused. Understanding their differences is fundamental to sound financial decision-making.

Feature	Investment	Speculation	Gambling
<b>Primary Motive</b>	Earn steady income and capital growth	Make large profits quickly	Entertainment; thrill of the game
<b>Time Horizon</b>	Long-term (years to decades)	Short-term (days to months)	Immediate (hours or less)
<b>Risk Level</b>	Low to moderate; calculated risk	High risk; accepted consciously	Very high; often total loss possible
<b>Basis</b>	Fundamental analysis; financial research	Market rumours, tips, trends	Pure chance; no analysis
<b>Capital Use</b>	Own funds; borrowed money avoided	Sometimes borrowed; leverage used	Disposable income; stakes risked
<b>Expectation of Return</b>	Reasonable, estimated, realistic	Very high; often unrealistic	Unlimited upside; likely loss
<b>Knowledge Required</b>	High — financial, economic analysis	Moderate — market reading	None — pure chance
<b>Examples</b>	Buying NSE-listed blue-chip shares for 10 years	Day-trading volatile stocks on tips	Betting on cricket match outcomes
<b>Tax Treatment</b>	Capital gains tax rates	Higher tax on short-term gains	Lottery/gambling tax at 30%

## 1.2 Investment Process

The investment process is a systematic framework that guides investors from defining their goals to evaluating outcomes.

### The 5-Stage Investment Process:

- 1. Investment Policy Formulation:** Define investment objectives (income, growth, safety), constraints (time horizon, tax situation, liquidity needs), and risk tolerance. This stage sets the strategic direction for all subsequent decisions.
- 2. Security Analysis:** Analyse individual securities and market conditions. Fundamental analysis examines the economy, industry, and company. Technical analysis studies price charts and market trends. The goal is to identify undervalued or overvalued securities.
- 3. Portfolio Construction:** Select the optimal combination of securities. Determine the asset allocation (% in equity, debt, gold, real estate). Achieve the target risk-return profile through diversification.
- 4. Portfolio Revision:** Periodically review the portfolio. Rebalance when actual allocation drifts from target due to market movements. Add or remove securities based on changing objectives or market outlook.
- 5. Portfolio Performance Evaluation:** Measure actual returns against benchmarks (e.g., Nifty 50, risk-free rate). Assess risk-adjusted returns (Sharpe Ratio, Treynor Ratio, Jensen's Alpha). Identify what worked and refine the strategy.

### Factors Affecting Investment Decisions:

- **Rate of Return Expected:** Primary consideration. Compare expected return with risk-free rate (RBI Repo Rate, government bond yield).
- **Risk and Uncertainty:** Higher the risk, higher the expected return demanded by investors. Risk tolerance varies by age, income, and goals.
- **Liquidity:** How quickly can the investment be converted to cash without significant loss? Vital for emergency funds.
- **Tax Implications:** Post-tax return matters. Consider LTCG/STCG taxes, dividend taxation, and 80C deduction benefits.
- **Investment Horizon:** Short-term goals (< 3 years): Debt instruments. Medium-term (3–7 years): Balanced funds. Long-term (> 7 years): Equity.
- **Inflation:** Ensure investment return beats inflation to grow real wealth. CPI inflation in India averages 5–6%.
- **Safety of Principal:** Protection of original capital — especially important for risk-averse and senior citizen investors.
- **Market Conditions:** Bull markets favour equity; bear markets favour debt and gold. Macro conditions (GDP, interest rates) affect all asset classes.

### 1.3 Investment Environment in India

The investment environment refers to the overall framework — regulatory, institutional, and market infrastructure — within which investment decisions are made and executed.

#### Regulatory Framework:

- **SEBI (Securities and Exchange Board of India):** Regulates capital markets; protects investors; registers and regulates FIIs, MFs, brokers, and listed companies.
- **RBI (Reserve Bank of India):** Regulates banks, NBFCs, money market instruments, and foreign exchange.
- **PFRDA (Pension Fund Regulatory & Development Authority):** Regulates the NPS system.
- **IRDAI (Insurance Regulatory & Development Authority of India):** Regulates insurance products used as investment vehicles.
- **Ministry of Finance:** Determines fiscal policy, tax treatment of investments, and government securities issuance.

### 1.4 Financial Markets

Financial markets are platforms or mechanisms through which buyers and sellers exchange financial claims (instruments). They facilitate the transfer of funds from savers to investors, set prices for financial assets, and provide liquidity to investors.

Market	Instrument Type	Maturity	Key Players	Regulator
Money Market	T-Bills, CP, CD, Call Money, Repo	Short-term (up to 1 year)	RBI, Commercial Banks, MFs, Corporates	RBI

<b>Capital Market — Primary</b>	IPO, FPO, Rights Issue, NCD	Long-term (>1 year)	SEBI, Investment Bankers, Companies, Investors	SEBI
<b>Capital Market — Secondary</b>	Listed Shares, Bonds, ETFs, F&O;	Existing securities	Stock Exchanges (NSE, BSE), Brokers, Investors	SEBI
<b>Forex Market</b>	Currency pairs (USD/INR, EUR/INR)	Spot and forward	Banks, Corporates, RBI, Traders	RBI
<b>Derivatives Market</b>	Futures, Options, Swaps	Contracts with expiry dates	Institutional investors, Hedgers, Speculators	SEBI

### Role of Financial Intermediaries:

- **Commercial Banks:** Accept deposits and extend credit; mobilise household savings for productive investment; facilitate payments.
- **Mutual Funds:** Pool savings from many investors; invest in diversified portfolios; provide professional management for retail investors.
- **Insurance Companies:** Collect premiums; invest in long-term assets (bonds, equities); provide insurance-linked savings (ULIPs, endowments).
- **NBFCs (Non-Banking Finance Cos.):** Provide credit where banks don't reach; invest in specific assets (gold loans, vehicle loans, infrastructure).
- **Stockbrokers and Depository Participants:** Execute buy/sell orders on behalf of investors; hold securities in dematerialised form (Demat).
- **Investment Banks:** Underwrite new issues; advise on M&As, IPOs; provide institutional equity research.
- **Credit Rating Agencies:** Assess creditworthiness of issuers (CRISIL, ICRA, CARE); help investors evaluate debt instruments.

## UNIT II

### Investment Avenues

### 2.1 Meaning and Classification of Investment Avenues

Investment avenues are the various financial instruments, securities, schemes, and real assets through which investors can deploy their surplus funds. Each avenue differs in risk, return, liquidity, safety, tax treatment, and minimum investment required.

**Criteria for Evaluating Investment Avenues:** Return (yield) | Safety of principal | Liquidity (ease of exit) | Tax benefits | Marketability | Hedge against inflation | Minimum investment | Regulatory protection

#### A. Equity Shares

Equity shares represent ownership in a company. As a shareholder, you are part-owner of the company. Equity is the highest-risk but potentially highest-return investment avenue over the long term.

- **Return Components:** Dividends (profit sharing) + Capital Appreciation (share price rise)
- **Voting Rights:** Equity shareholders vote at AGMs — elect directors, approve dividends
- **Risk:** Highest among all investment classes — company may lose value or go bankrupt
- **Liquidity:** High — listed shares traded on NSE/BSE daily during market hours (9:15 AM – 3:30 PM)
- **Taxation:** LTCG (> 1 year): 10% above ₹1 lakh gain; STCG (< 1 year): 15%
- **Investment Approach:** Blue-chip stocks for stability; small-cap for aggressive growth

**Example:** HDFC Bank, Reliance Industries, Infosys, TCS are examples of large-cap blue-chip stocks. An investor who bought ₹1 lakh of Infosys in 2000 would have over ₹1 crore today — the power of long-term equity investing.

#### B. Preference Shares

Preference shares are a hybrid — they have features of both equity (ownership) and debt (fixed dividend). Preference shareholders receive dividends before equity shareholders and have priority in asset distribution during liquidation.

- **Fixed Dividend:** Stated rate of dividend paid before equity dividend
- **Preference in Liquidation:** Paid before equity holders if company winds up
- **No Voting Rights (generally):** Unless dividend is unpaid for specified period
- **Types:** Cumulative (unpaid dividends accumulate), Non-Cumulative, Redeemable, Convertible (can convert to equity)
- **Risk:** Lower than equity; higher than debentures
- **Return:** Fixed dividend yield; limited capital appreciation

#### C. Debentures and Bonds

Debentures (corporate) and bonds (government) are debt instruments. The investor lends money to the issuer who promises to pay a fixed rate of interest and return the principal at maturity.

- **Fixed Interest (Coupon):** Regular interest payments regardless of profit/loss
- **Priority in Repayment:** Debt holders paid before shareholders in liquidation
- **Lower Risk than Equity:** Fixed obligation; secured debentures backed by company assets
- **Government Bonds:** Safest — backed by sovereign guarantee; include G-Secs, T-Bills, SDL
- **Corporate Bonds:** Higher yield than government bonds but higher credit risk
- **Taxation:** Interest income taxed at slab rate; LTCG on listed bonds: 10% (> 3 years)

**Example:** RBI issues 10-year Government Securities (G-Secs) at around 7% per annum. A corporate NCD from Bajaj Finance might offer 8–9% but carries company-specific credit risk.

### D. Mutual Funds

**Mutual Fund** is a vehicle that pools money from many investors and invests in a diversified portfolio of securities managed by a professional fund manager. NAV (Net Asset Value) = (Assets – Liabilities) / Units Outstanding.

Fund Type	Invests In	Risk Level	Ideal For
<b>Equity Funds (Large Cap, Mid Cap, Small Cap)</b>	Stocks as per mandate	High	Long-term wealth creation (>5 years)
<b>Debt/Fixed Income Funds</b>	Government securities, corporate bonds	Low to Moderate	Short to medium-term; conservative investors
<b>Hybrid/Balanced Funds</b>	Mix of equity and debt (e.g., 60:40)	Moderate	Balanced risk-return; medium-term goals
<b>Index Funds</b>	Replicate an index (Nifty 50, Sensex)	Market risk only	Passive, low-cost long-term investing
<b>ELSS (Equity Linked Savings Scheme)</b>	Equity; 3-year lock-in	High	Tax saving (80C) + wealth creation
<b>Liquid Funds</b>	Short-term money market instruments	Very low	Emergency fund; parking surplus cash
<b>Sectoral/Thematic Funds</b>	Specific sector (IT, Pharma, Banking)	Very high	Tactical bet on specific themes
<b>International Funds</b>	Foreign stocks and markets	High + currency risk	Geographic diversification

**Key Tip:** SIP (Systematic Investment Plan) — investing a fixed amount monthly in a mutual fund — harnesses Rupee Cost Averaging: more units bought when NAV is low, fewer when high. This reduces average cost over time. Even ■500/month in an equity fund over 20 years can grow significantly through compounding.

### E. Bank Deposits

Bank deposits are the most popular savings instrument in India due to their safety, simplicity, and guaranteed returns.

- **Savings Account:** Liquid, low-interest (2.5–4%). Best for daily transactions and emergency fund.

- **Fixed Deposit (FD):** Lump sum at a fixed rate for a specific tenure (7 days to 10 years). Higher rate for longer tenure. Penalty for premature withdrawal. Currently 6–7.5% for general public; 0.25–0.5% extra for seniors.
- **Recurring Deposit (RD):** Monthly fixed instalment over a period. Combines disciplined saving with FD-like returns.
- **Tax Saver FD:** 5-year lock-in FD. Eligible for Section 80C deduction up to **■1.5 lakh**.

**Key Tip:** DICGC (Deposit Insurance and Credit Guarantee Corporation) insures bank deposits up to **■5 lakh** per depositor per bank (across all accounts). This guarantee covers savings, FD, and RD balances.

### F. Post Office Savings Schemes

Post Office schemes are government-backed small savings instruments offering safety, tax benefits, and assured returns — especially important for rural and semi-urban investors.

Scheme	Interest Rate (Approx.)	Tenure	Tax Benefit (80C)	Lock-in
Post Office Savings Account	4.0% p.a.	No fixed tenure	No	Nil
National Savings Certificate (NSC)	7.7% p.a. (compounded annually)	5 years	Yes (principal)	5 years
Kisan Vikas Patra (KVP)	7.5% p.a. (money doubles in ~115 months)	Flexible	No	30 months (partial)
Senior Citizens Savings Scheme (SCSS)	8.2% p.a. (quarterly)	5 years (extendable)	Yes	5 years
Mahila Samman Savings Certificate	7.5% p.a.	2 years	No	Nil
PPF	7.1% p.a. (EEE status)	15 years	Yes	15 years

### G. Public Provident Fund (PPF)

**PPF** is one of India's most popular long-term investment schemes. It enjoys EEE (Exempt-Exempt-Exempt) tax status: investment is deductible (80C), interest is tax-free, and maturity proceeds are tax-free.

- Current interest rate: ~7.1% per annum, compounded annually (revised quarterly by Government)
- Maximum annual investment: **■1.5 lakh**; minimum: **■500**
- Tenure: 15 years; can be extended in blocks of 5 years
- Partial withdrawal allowed from 7th year onward
- Loan facility against PPF balance from 3rd to 6th year
- Account can be opened at any bank or post office; cannot be attached by court for debt recovery

**Example:** If you invest ■1.5 lakh per year in PPF for 15 years at 7.1%, the maturity value is approximately ■40.68 lakh — completely tax-free! This illustrates the power of EEE status and compounding.

### H. National Pension System (NPS)

NPS is a government-backed voluntary, long-term retirement savings scheme administered by PFRDA. It offers market-linked returns with the option to choose asset allocation (Equity E, Corporate Bonds C, Government Securities G, Alternative Assets A).

- **Tier I Account:** Mandatory for NPS subscribers; restrictions on withdrawal until age 60; tax benefits.
- **Tier II Account:** Voluntary; no lock-in; no additional tax benefit; for flexible savings.
- **Tax Benefit:** Up to ■1.5 lakh under 80C + additional ■50,000 under 80CCD(1B) = ■2 lakh total.
- **At Maturity (age 60):** 60% withdrawn tax-free; 40% mandatorily used to buy annuity (pension).
- **Fund Managers:** SBI Pension Funds, HDFC Pension, ICICI Prudential Pension, etc.

### I. Gold and Sovereign Gold Bonds (SGB)

Gold has been a traditional investment in India, valued for its inflation-hedging property and cultural significance. Modern investors have multiple gold investment options:

Form	How to Invest	Storage	Return	Risk
<b>Physical Gold</b>	Buy jewellery, coins, bars	At home/bank locker	Price appreciation only	Making charges, purity risk, theft
<b>Gold ETF</b>	Buy on stock exchange (demat)	Demat account	Price of gold	Market risk; no making charges
<b>Sovereign Gold Bond (SGB)</b>	RBI issues tranches; buy via bank/broker	Demat/Bond form	Price appreciation + 2.5% annual interest	Market risk; sovereign guaranteed
<b>Digital Gold</b>	Buy fractional amounts online	Stored in vaults by provider	Price of gold	Provider risk; no regulation

**Key Tip:** SGB is the best form of gold investment: you get the price appreciation of gold PLUS 2.5% annual interest (paid semi-annually). Capital gains on SGB at maturity are completely TAX-FREE.

### J. Real Estate

Real estate involves investing in physical property — residential, commercial, or industrial. It is one of the most popular investment classes in India due to cultural preference and expected long-term appreciation.

- **Return Components:** Rental income (regular cash flow) + Capital appreciation (property price rise)
- **Inflation Hedge:** Property values and rents typically rise with inflation
- **Leverage:** Home loans allow investing in a large asset with 20% down payment
- **Illiquidity:** Major disadvantage — cannot sell a fraction of property quickly
- **Large Capital Required:** Entry barrier is high — lakhs to crores
- **Taxation:** LTCG on property (> 2 years): 20% with indexation; rental income taxed at slab rate

### K. Exchange Traded Funds (ETFs)

ETFs are investment funds traded on stock exchanges, exactly like shares. They track an index, commodity, bond, or basket of assets. ETFs combine the diversification of mutual funds with the trading flexibility of stocks.

- **Low Cost:** Expense ratio of 0.02–0.20% — much lower than actively managed funds
- **High Transparency:** Holdings published daily; tracks a known index
- **Intraday Trading:** Can be bought and sold at market prices throughout the day
- **Diversification:** One Nifty 50 ETF gives exposure to 50 large-cap companies
- **Types:** Equity ETFs (Nifty 50 ETF), Debt ETFs (Bharat Bond ETF), Gold ETFs, International ETFs

# UNIT III

## Risk, Return and Security Valuation

### 3.1 Concept and Types of Risk

**Investment Risk** is the probability or likelihood that the actual return from an investment will be different from (especially less than) the expected return. Risk arises from uncertainty about future conditions.

#### Sources of Investment Risk:

Risk Type	Category	Source	Affects	Can Diversify ?
<b>Market Risk (Systematic)</b>	Systematic	Overall market decline due to recession, war, rate hike	All securities in the market	No
<b>Interest Rate Risk</b>	Systematic	Changes in RBI repo rate; inverse relationship with bond prices	Bonds and debt funds heavily	No
<b>Inflation Risk (Purchasing Power)</b>	Systematic	Rising prices erode real returns	Fixed income investments most	No
<b>Currency/Exchange Rate Risk</b>	Systematic	INR depreciation/appreciation vs. foreign currencies	International investments	No
<b>Business / Operating Risk</b>	Unsystematic	Company-specific operational problems — factory fire, product failure	Individual companies	Yes
<b>Financial Risk / Credit Risk</b>	Unsystematic	Company's inability to service debt; high leverage	Companies with weak balance sheets	Yes
<b>Liquidity Risk</b>	Unsystematic	Cannot sell the investment quickly at fair value	Small-cap stocks, real estate, unlisted bonds	Partially
<b>Management Risk</b>	Unsystematic	Poor decisions by company management — fraud, mismanagement	Specific companies	Yes

**Remember:** Systematic Risk (Market Risk) is NON-DIVERSIFIABLE — it cannot be eliminated by holding more stocks. Unsystematic Risk (Company-Specific Risk) IS DIVERSIFIABLE — it reduces as more uncorrelated assets are added to the portfolio.

### Risk-Return Relationship:

One of the fundamental principles of finance: **Higher Risk = Higher Expected Return**. Rational investors demand higher returns as compensation for taking on additional risk.

Asset Class	Approx. Expected Return (India)	Risk Level	Time Horizon
Savings Account	2.5–4% p.a.	Very Low	Anytime
Government Bonds (G-Secs)	6.5–7.5% p.a.	Low	1–30 years
PPF / NSC	7–8% p.a.	Very Low (Guaranteed)	5–15 years
Corporate Bonds (AAA rated)	7.5–9% p.a.	Low to Moderate	1–10 years
Balanced/Hybrid Mutual Funds	9–12% p.a. (long-term average)	Moderate	3–7 years
Large Cap Equity Funds	11–14% p.a. (long-term average)	High	> 5 years
Mid/Small Cap Equity Funds	14–18% p.a. (long-term avg)	Very High	> 7 years
Direct Equity (Stock Picking)	Variable (–50% to +100%)	Very High	Long-term
Real Estate	8–12% p.a. (appreciation+rent)	Moderate (illiquid)	> 5 years
Gold	8–10% p.a. (long-term average)	Moderate	> 5 years

## 3.2 Measurement of Return

Measuring return accurately is essential for evaluating investment performance and comparing alternatives.

### A. Holding Period Return (HPR):

$$\text{HPR} = [ \text{Income Received} + (\text{Ending Value} - \text{Beginning Value}) ] / \text{Beginning Value} \times 100$$

This measures the total return — income plus capital gain/loss — over the period the investment is held.

**Example:** You buy 100 shares of XYZ at ₹200 each. After one year, you receive ₹5 per share as dividend and sell at ₹230.  $\text{HPR} = [500 + (23,000 - 20,000)] / 20,000 \times 100 = 3,500/20,000 \times 100 = 17.5\%$

### B. Annualised Return / CAGR (Compound Annual Growth Rate):

$$\text{CAGR} = [ (\text{Ending Value} / \text{Beginning Value})^{(1/n)} - 1 ] \times 100$$

Where n = number of years. CAGR shows the smoothed annual rate at which an investment grew, as if it grew at a steady rate.

**Example:** ■1 lakh invested in 2014 grew to ■3.5 lakh by 2024 (10 years).  
 $\text{CAGR} = (3.5/1)^{(1/10)} - 1 = 3.5^{0.1} - 1 = 1.1333 - 1 = \mathbf{13.33\% \text{ per annum}}$

### 3.3 Time Value of Money (TVM)

**The Time Value of Money** is the concept that a rupee today is worth more than a rupee in the future, because money today can be invested to earn a return. TVM is the foundation of all financial valuation.

#### Future Value (FV) — Compounding:

$$\text{Formula: } \text{FV} = \text{PV} \times (1 + r)^n$$

Where PV = Present Value, r = interest rate per period, n = number of periods

**Example:** ■10,000 invested at 10% p.a. for 5 years:  $\text{FV} = 10,000 \times (1.10)^5 = 10,000 \times 1.6105 = \mathbf{16,105}$

#### Present Value (PV) — Discounting:

$$\text{Formula: } \text{PV} = \text{FV} / (1 + r)^n$$

Discounting converts future money to its equivalent value today

**Example:** What is ■16,105 receivable after 5 years worth today at 10% discount rate?  $\text{PV} = 16,105/1.6105 = \mathbf{10,000}$

#### Future Value of Annuity (FVA):

$$\text{Formula: } \text{FVA} = C \times [(1+r)^n - 1] / r$$

Where C = periodic payment, r = rate per period, n = periods

**Example:** SIP of ■5,000/month at 12% p.a. (1% per month) for 10 years (120 months):  $\text{FVA} = \sim \mathbf{11.61 \text{ lakh}}$

#### Present Value of Annuity (PVA):

$$\text{Formula: } \text{PVA} = C \times [1 - (1+r)^{-n}] / r$$

Used for loan EMI calculations and bond valuation

**Example:** What lump sum today = ■10,000 per year for 10 years at 8%?  $\text{PVA} = 10,000 \times 6.71 = \mathbf{67,100}$

### 3.4 Valuation of Bonds

Bond valuation determines the fair (intrinsic) value of a bond by calculating the present value of all expected future cash flows — coupon payments and face value — discounted at the investor's required rate of return.

**Bond Value = PV of Coupons + PV of Face Value**

$$V = C \times [1 - (1+r)^{-n}] / r + F / (1+r)^n$$

Where: V = Bond Value, C = Annual Coupon (Face Value x Coupon Rate), r = Required Rate of Return, n = Years to Maturity, F = Face Value

**Key Bond Valuation Relationships:**

Situation	Relationship	Result
Coupon Rate = Required Return	C/F = r	Bond valued AT PAR (= Face Value)
Coupon Rate > Required Return	C/F > r	Bond valued at PREMIUM (> Face Value) — bond is attractive
Coupon Rate < Required Return	C/F < r	Bond valued at DISCOUNT (< Face Value) — bond is unattractive
Rates rise → Bond prices fall	Inverse relationship	Duration determines the degree of price sensitivity

**Example:** A bond: Face Value ₹1,000 | Coupon 10% (₹100/year) | 5 years to maturity | Required return 12%.  
 PV of coupons =  $100 \times [1 - (1.12)^{-5}] / 0.12 = 100 \times 3.6048 = ₹360.48$   
 PV of face value =  $1,000 / (1.12)^5 = 1,000 / 1.7623 = ₹567.43$   
**Bond Value = 360.48 + 567.43 = ₹927.91** (at discount, since coupon < required rate)

**3.5 Valuation of Equity Shares**

Equity valuation is more complex than bond valuation because dividends are not guaranteed and the holding period is indefinite. Several models exist:

**A. Dividend Discount Model (DDM) — Gordon Growth Model:**

$$P = D / (K_e - g)$$

Where: P = Current Intrinsic Value of Share, D = Expected Dividend next year =  $D \times (1+g)$ ,  $K_e$  = Required rate of return on equity (Cost of Equity), g = Constant growth rate of dividends (must be <  $K_e$ )

**Example:** A company paid ₹10 dividend (D). Dividends grow at 8% p.a. Required return = 14%.  
 $D = 10 \times 1.08 = ₹10.80$   
 $P = 10.80 / (0.14 - 0.08) = 10.80 / 0.06 = ₹180$   
 If current market price is ₹150 → UNDERVALUED → BUY  
 If current market price is ₹220 → OVERVALUED → SELL

**B. Price-Earnings (P/E) Method:**

**Intrinsic Value = EPS x Industry Average P/E Ratio**

Simple, widely used method. Compare company's P/E with industry average to identify over/undervaluation.

**Example:** Company EPS = ₹25. Industry average P/E = 20.  
**Intrinsic Value = 25 x 20 = ₹500.** If market price is ₹450 → undervalued.

### 3.6 Credit Rating

**Credit Rating** is an independent assessment of the ability and willingness of a borrower (company, government, or financial institution) to repay their debt obligations in full and on time.

Rating (CRISIL / ICRA)	Category	Interpretation	Investor Suitability
<b>AAA / AAA</b>	Highest Safety	Lowest default risk; most stable; exemplary financials	Very conservative investors; institutions
<b>AA+ / AA / AA-</b>	High Safety	Very low credit risk; very strong debt-servicing capacity	Conservative investors
<b>A+ / A / A-</b>	Adequate Safety	Low credit risk; strong but may be affected by economic changes	Moderate risk investors
<b>BBB+ / BBB / BBB-</b>	Moderate Safety (Lowest Investment Grade)	Adequate protection; more vulnerable to adverse conditions	Risk-tolerant investors
<b>BB and below</b>	Speculative / Junk	High credit risk; default possible in adverse conditions	Speculative/High yield seekers
<b>D</b>	Default	Currently in default	Not recommended

**Key Tip:** Major Credit Rating Agencies in India: CRISIL (subsidiary of S&P;), ICRA (subsidiary of Moody's), CARE, India Ratings (Fitch subsidiary), Brickwork Ratings. SEBI mandates credit rating for all publicly issued debt instruments.

# UNIT IV

## Portfolio Management and Contemporary Investment Practices

### 4.1 Portfolio — Meaning and Objectives

**Portfolio** is a purposeful collection of financial assets (shares, bonds, mutual funds, cash equivalents) owned by an investor. Portfolio management is the art and science of making investment decisions to maximise return for a given level of risk, or minimise risk for a given level of return.

#### Objectives of Portfolio Management:

- **Security / Safety of Principal:** Preserve the invested capital from significant loss.
- **Stable Income:** Generate consistent income through dividends, interest, and capital gains.
- **Capital Appreciation:** Grow the value of the portfolio over the long term.
- **Liquidity:** Maintain ability to exit investments quickly when needed.
- **Tax Minimisation:** Optimise after-tax returns by choosing tax-efficient instruments.
- **Inflation Protection:** Ensure portfolio returns consistently beat inflation.

#### Principles of Portfolio Construction:

- **Diversification:** Spread investments across asset classes, sectors, geographies, and instruments. Reduces unsystematic risk without sacrificing return.
- **Risk-Return Trade-off:** Consciously balance the risk taken against the return expected. Match risk level to investor's risk tolerance and goals.
- **Asset Allocation:** The most important portfolio decision — what percentage to allocate to equity, debt, gold, and cash. Drives 90%+ of portfolio performance.
- **Correlation Consideration:** Combine assets with low or negative correlation — when one falls, others may hold or rise. This smooths the portfolio's return path.
- **Rebalancing:** Periodically realign actual allocation to target allocation. Enforces buy-low-sell-high discipline automatically.
- **Investment Horizon:** Match asset type to time horizon. Short-term money should not be in volatile equity; long-term money should not sit in low-return savings.

### 4.2 Diversification and Portfolio Risk

Diversification is the strategy of spreading investments across multiple assets to reduce risk. It works because different assets do not move up and down in perfect synchrony.

**Portfolio Variance** depends on: (1) Individual asset variances/risks, and (2) Correlations between assets.

Portfolio Risk = f(Asset risks, Asset correlations)

When assets are perfectly negatively correlated ( $r = -1$ ), portfolio risk can theoretically be reduced to zero!

### Correlation and Its Effect on Portfolio Risk:

Correlation (r)	Interpretation	Effect on Diversification
<b>+1.0 (Perfect Positive)</b>	Assets move exactly together	No diversification benefit; risk not reduced
<b>+0.5 (Moderate Positive)</b>	Assets tend to move in same direction	Some diversification benefit
<b>0 (Zero Correlation)</b>	Assets are independent of each other	Good diversification benefit
<b>-0.5 (Moderate Negative)</b>	Assets tend to move in opposite directions	Strong diversification benefit
<b>-1.0 (Perfect Negative)</b>	Assets always move in opposite directions	Maximum diversification; risk can be eliminated

**Key Tip:** A classic example: Gold and equity often have low or negative correlation. When stock markets crash (2008, 2020), gold prices tend to rise. Holding both in a portfolio reduces overall portfolio volatility.

## 4.3 Modern Portfolio Theory (MPT) — Harry Markowitz

**Harry Markowitz** (Nobel Prize 1990) published "Portfolio Selection" (1952), establishing the mathematical foundation for portfolio diversification. MPT demonstrates that rational investors should hold diversified portfolios to achieve an optimal risk-return combination.

### Core Concepts of MPT:

- **Efficient Portfolio:** A portfolio that offers the MAXIMUM expected return for a given level of risk, OR the MINIMUM risk for a given expected return.
- **Efficient Frontier:** The set of all efficient portfolios, plotted on a graph of expected return (Y-axis) vs. risk/standard deviation (X-axis). Rational investors should only hold portfolios on this frontier.
- **Minimum Variance Portfolio:** The portfolio on the efficient frontier with the lowest possible risk. Starting point of the efficient frontier.
- **Optimal Portfolio:** The portfolio on the efficient frontier that matches an investor's specific risk preference, determined by the point of tangency with the investor's highest indifference curve.
- **Capital Market Line (CML):** When a risk-free asset (T-Bill) is available, the efficient frontier becomes a straight line (CML) from the risk-free rate through the Market Portfolio. All investors should hold a combination of the risk-free asset and the Market Portfolio.
- **Market Portfolio:** The portfolio containing ALL risky assets in proportion to their market capitalization. In practice, approximated by a broad market index (Nifty 500, Sensex).

## 4.4 Fundamental Analysis

**Fundamental Analysis** is the process of evaluating a security's intrinsic or fair value by examining the underlying economic, industry, and company factors. The premise: in the long run, market price converges to intrinsic value.

Fundamental analysis follows a **top-down approach**: Economy → Industry → Company (EIC Framework)

### Step 1: Economy Analysis (E)

Assess the macroeconomic environment and its impact on corporate earnings and stock valuations.

- **GDP Growth Rate:** Higher GDP → higher corporate earnings → higher stock prices
- **Interest Rates:** Lower rates → cheaper borrowing → higher corporate profits; also reduces discount rate → higher stock values
- **Inflation:** Moderate inflation is good; high inflation squeezes profit margins
- **Government Policies:** Budget, trade policies, FDI regulations, infrastructure spending
- **Foreign Exchange Rates:** Critical for export-oriented and import-dependent companies
- **Business Cycle:** Expansion, Peak, Contraction, Trough — different sectors perform differently at each stage

### Step 2: Industry Analysis (I)

Assess the attractiveness and growth prospects of the specific industry.

- **Porter's Five Forces:** Competitive rivalry, buyer power, supplier power, new entrants, substitutes
- **Industry Life Cycle:** Pioneer stage, Rapid growth, Maturity, Decline
- **Regulatory Environment:** Government regulations specific to the industry
- **Demand Outlook:** Is demand for the industry's products growing?

### Step 3: Company Analysis (C)

Assess the financial health, management quality, and competitive position of a specific company.

Analysis Area	Key Metrics	What It Tells You
<b>Profitability</b>	Net Profit Margin, ROE, ROCE, EBITDA Margin	Is the company earning adequate returns on invested capital?
<b>Liquidity</b>	Current Ratio, Quick Ratio	Can the company meet its short-term obligations?
<b>Solvency/Leverage</b>	Debt-to-Equity Ratio, Interest Coverage Ratio	Is debt at manageable levels? Can interest be serviced?
<b>Efficiency</b>	Asset Turnover, Inventory Turnover, Receivables Days	How efficiently is the company using its assets?
<b>Valuation Ratios</b>	P/E Ratio, P/B Ratio, EV/EBITDA, Dividend Yield	Is the stock cheap or expensive relative to earnings/assets?
<b>Growth</b>	Revenue CAGR, EPS CAGR, Dividend Growth Rate	How fast is the company growing its financials?

## 4.5 Technical Analysis

**Technical Analysis** is the study of past market data — primarily price and volume — to forecast future price movements. The core belief: "History repeats itself" and all fundamentals are already reflected in price.

### Three Premises of Technical Analysis (Dow Theory):

- The market discounts everything — price already reflects all known information
- Price moves in trends — trends persist until a clear reversal signal appears
- History repeats itself — investor psychology repeats patterns

### Key Technical Tools and Concepts:

Tool / Concept	Description	Used To
<b>Support Level</b>	Price level where downtrend pauses; buyers exceed sellers	Identify buying opportunities
<b>Resistance Level</b>	Price level where uptrend pauses; sellers exceed buyers	Identify selling/shorting opportunities
<b>Moving Average (SMA/EMA)</b>	Average price over n days; smooths price data	Identify trend direction and crossovers
<b>Relative Strength Index (RSI)</b>	Momentum oscillator 0–100; RSI > 70 = overbought; < 30 = oversold	Identify overbought/oversold conditions
<b>MACD (Moving Avg Convergence Divergence)</b>	Difference between 12-day and 26-day EMA; signal line crossover	Identify trend changes and momentum
<b>Bollinger Bands</b>	Bands plotted 2 standard deviations above/below 20-day SMA	Identify volatility and potential reversals
<b>Volume Analysis</b>	Volume confirms price trends; high volume = stronger trend	Validate price movements
<b>Candlestick Patterns</b>	Doji, Hammer, Engulfing, Shooting Star patterns	Short-term reversal signals

Aspect	Fundamental Analysis	Technical Analysis
<b>Primary Focus</b>	Intrinsic value; financial data	Past price and volume patterns
<b>Time Frame</b>	Long-term investor (months to years)	Short-term trader (days to weeks)
<b>Data Used</b>	Financial statements, economic data, industry reports	Price charts, volume data, technical indicators

<b>Core Question</b>	What to buy/sell? (valuation)	When to buy/sell? (timing)
<b>Best Suited For</b>	Long-term value investors	Active traders and market timers
<b>Complementary Use</b>	Combined with technical analysis for entry/exit timing	Combined with fundamentals to avoid value traps

### 4.6 Efficient Market Hypothesis (EMH)

**EMH** (Eugene Fama, 1970) states that in an efficient market, security prices at any point in time fully reflect ALL available information. If true, it is impossible to consistently earn excess returns through either fundamental or technical analysis.

#### Three Forms of EMH:

Form	Information Reflected in Price	Implication for Analysis
<b>Weak Form</b>	All past trading data (price, volume, trading history)	Technical analysis cannot generate excess returns; prices follow a random walk
<b>Semi-Strong Form</b>	All publicly available information (financial statements, news, analyst reports, economic data)	Fundamental analysis also cannot generate excess returns; price adjusts instantly
<b>Strong Form (Theoretical)</b>	All information — public AND private (insider information)	Even insider information cannot generate excess returns; purely theoretical

***Remember:** Most academics believe markets are semi-strong efficient. However, numerous anomalies suggest markets are NOT fully efficient: the January Effect, the P/E Effect, momentum strategies, and Warren Buffett's long track record challenge EMH.*

### 4.7 Behavioural Finance

**Behavioural Finance** is the study of the influence of psychology on the behaviour of investors and financial analysts, and its subsequent effects on markets. It challenges the "rational investor" assumption of EMH.

#### Key Behavioural Biases of Investors:

Bias	Description	Real-World Manifestation	How to Overcome
<b>Overconfidence</b>	Investors overestimate their ability to predict markets	Excessive trading; taking concentrated positions; ignoring diversification	Regular review of actual performance vs. expectations

<b>Herd Behaviour / Herding</b>	Following crowd regardless of fundamentals	Buying in bull markets at peak prices; panic selling during crashes	Independent research; contrarian thinking
<b>Loss Aversion</b>	Fear of losses 2x stronger than pleasure of equivalent gains	Holding losing stocks too long; selling winners too early (Disposition Effect)	Focus on total portfolio return; pre-set stop-loss rules
<b>Anchoring</b>	Over-relying on first piece of information	Fixating on purchase price as benchmark for decisions	Use fundamental valuation, not purchase price, as benchmark
<b>Recency Bias</b>	Overweighting recent events in forecasting	Extrapolating recent trend indefinitely — buying after bull run, panic after crash	Study historical cycles; maintain long-term perspective
<b>Confirmation Bias</b>	Seeking information that confirms existing beliefs	Ignoring negative news about held stocks	Actively seek out opposing viewpoints; devil's advocate analysis
<b>Mental Accounting</b>	Treating money differently based on its source or category	Spending a tax refund frivolously but being frugal with salary	View all money as fungible; integrated financial planning

## 4.8 Investor Protection Measures in India

SEBI and the Government of India have established comprehensive measures to protect retail investors in the securities markets.

- **SEBI Investor Protection & Education Fund (IPEF):** Funds investor education programmes; reimburses investors in case of defaults by registered entities.
- **KYC (Know Your Customer) Norms:** All investors must complete KYC (identity, address, income proof) before opening demat/trading accounts. Centralised via KYC Registration Agencies (KRAs).
- **SEBI SCORES Portal:** Online complaint redressal platform (scores.sebi.gov.in). Investors can file grievances against listed companies, brokers, and intermediaries.
- **Mandatory Disclosures (LODR):** SEBI's Listing Obligations and Disclosure Requirements force listed companies to disclose quarterly results, board changes, related party transactions, material events.
- **Investor Awareness Programmes:** SEBI conducts workshops and campaigns (especially in Tier 2/3 cities) on safe investing, MF sahi hai, etc.
- **Insider Trading Regulations:** SEBI (Prohibition of Insider Trading) Regulations 2015 prohibit trading based on unpublished price-sensitive information (UPSI).
- **Whistleblower Mechanism:** Companies required to have a mechanism for employees to report securities law violations to SEBI anonymously.

## 4.9 Emerging Trends in Investment

Trend	Description	Key Features	Indian Examples
<b>ESG Investing (Sustainable Investing)</b>	Investing in companies with strong Environmental, Social, and Governance practices. Aligns returns with values.	ESG ratings; UN PRI framework; global AUM exceeding \$30 trillion	SEBI mandated Business Responsibility & Sustainability Report (BRSR) for top 1,000 listed companies
<b>Digital Investment Platforms</b>	Online and mobile apps enabling direct investment in stocks, mutual funds, bonds with zero or minimal fees.	Fractional investing; real-time tracking; UX-first design; robo-advisory features	Zerodha, Groww, Kuvera, Coin (by Zerodha), ETMoney, Scripbox
<b>FinTech and Embedded Finance</b>	Technology-driven disruption embedding financial services within non-financial products.	Account aggregator framework; open banking APIs; AI-driven credit scoring	Fi Money, Jupiter, PayTM Money, Navi; OCEN (Open Credit Enablement Network)
<b>Robo-Advisory Services</b>	Automated algorithm-based portfolio management based on risk profile questionnaire.	Low cost; no human bias; automatic rebalancing; tax harvesting	Scripbox, ETMoney, Goalwise; HDFC Bank's automated advisory
<b>Cryptocurrency and Blockchain</b>	Digital assets using decentralised blockchain technology.	High volatility; unregulated globally; taxed at 30% in India (FA 2022)	Bitcoin, Ethereum; RBI exploring e-RUPI, Central Bank Digital Currency (CBDC)
<b>Sustainable and Impact Investing</b>	Beyond ESG — investments that generate measurable positive social/environmental impact alongside returns.	Social bonds; green bonds; SDG-linked investments	RBI's Sustainable Finance framework; SEBI's Green Bonds guidelines

## QUICK REVISION

Complete Summary — Formulas, Glossary & Quick Reference

### Master Formula Sheet

Formula	Expression	When to Use
<b>Holding Period Return</b>	$(\text{Income} + \text{Capital Gain}) / \text{Beginning Value} \times 100$	Total return for any holding period
<b>CAGR</b>	$(\text{Ending Value} / \text{Beginning Value})^{1/n} - 1$	Smoothed annual return over multiple years
<b>Future Value (FV)</b>	$PV \times (1 + r)^n$	Compounding a lump sum investment
<b>Present Value (PV)</b>	$FV / (1 + r)^n$	Discounting a future amount to today
<b>FV of Annuity</b>	$C \times [(1+r)^n - 1] / r$	SIP or recurring investment future value
<b>PV of Annuity</b>	$C \times [1 - (1+r)^{-n}] / r$	Loan valuation, bond coupon PV
<b>Bond Value</b>	$C \times [1 - (1+r)^{-n}] / r + F / (1+r)^n$	Intrinsic value of a debt instrument
<b>Gordon Growth Model</b>	$D \div (K_e - g)$	Equity share intrinsic value (stable growth)
<b>Dividend Yield</b>	$\text{Annual Dividend} / \text{Market Price} \times 100$	Income return from shares
<b>EPS</b>	$\text{Net Profit After Tax} / \text{No. of Equity Shares}$	Per-share earnings
<b>P/E Ratio</b>	$\text{Market Price Per Share} / \text{EPS}$	Relative valuation of stocks
<b>P/B Ratio</b>	$\text{Market Price} / \text{Book Value Per Share}$	Value vs. accounting net worth
<b>ROE (Return on Equity)</b>	$\text{Net Income} / \text{Shareholders' Equity} \times 100$	Profitability of equity capital
<b>Debt-Equity Ratio</b>	$\text{Total Debt} / \text{Total Equity}$	Financial leverage and solvency
<b>Current Ratio</b>	$\text{Current Assets} / \text{Current Liabilities}$	Short-term liquidity

### Complete Glossary of Key Terms

Term	Definition
<b>Investment</b>	Commitment of funds to financial/real assets expecting positive future returns

<b>Speculation</b>	Short-term high-risk activity aiming for large quick profits
<b>Gambling</b>	Staking money on chance events with no analytical basis
<b>Portfolio</b>	Collection of financial assets held by an investor
<b>Diversification</b>	Spreading investments to reduce unsystematic risk
<b>Systematic Risk</b>	Market risk affecting all securities; non-diversifiable
<b>Unsystematic Risk</b>	Company-specific risk; can be reduced through diversification
<b>Efficient Frontier</b>	Set of optimal portfolios offering best return for each risk level (Markowitz)
<b>EMH</b>	Prices fully reflect all available information at all times (Fama, 1970)
<b>Fundamental Analysis</b>	Valuing securities using economic, industry, and company financial data
<b>Technical Analysis</b>	Forecasting prices using historical price and volume data and charts
<b>Behavioural Finance</b>	Study of psychological biases affecting investor decisions and market prices
<b>Credit Rating</b>	Independent assessment of creditworthiness of a debt issuer
<b>NAV</b>	Net Asset Value — per-unit value of a mutual fund = (Assets – Liabilities) / Units
<b>SIP</b>	Systematic Investment Plan — investing fixed amount regularly in a mutual fund
<b>CAGR</b>	Compound Annual Growth Rate — smoothed annual return over multiple years
<b>Holding Period Return</b>	Total return (income + capital gain) as % of initial investment
<b>Time Value of Money</b>	A rupee today is worth more than a rupee in the future
<b>Gordon Model</b>	$P = \frac{D}{K_e - g}$ — equity valuation using dividend growth
<b>Bond Duration</b>	Measure of a bond's price sensitivity to interest rate changes
<b>P/E Ratio</b>	Price-to-Earnings — how much investors pay per rupee of earnings
<b>ROE</b>	Return on Equity — profitability of shareholders' capital
<b>ESG</b>	Environmental, Social, Governance — criteria for sustainable investing
<b>Robo-Advisor</b>	Algorithm-based automated portfolio management service
<b>PPF</b>	Public Provident Fund — 15-year govt savings with EEE tax status
<b>SGB</b>	Sovereign Gold Bond — RBI-issued bond providing gold exposure + 2.5% interest
<b>SEBI</b>	Securities and Exchange Board of India — capital market regulator
<b>PFRDA</b>	Pension Fund Regulatory & Development Authority — NPS regulator
<b>DICGC</b>	Deposit Insurance protecting bank deposits up to ₹5 lakh per depositor

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**Best wishes for your examinations!**

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