1 Corporate Governance and Agency Problem

1.1 Investment and Financing Decisions

The firm raises capital (debt or equity) through financing decisions and uses that capital to acquire assets (investments).

Capital Budgeting Decision is a decision on whether to invest in tangible or intangible assets, also known as Capital Expenditure (CAPEX) decisions or Investment Decisions.

1.1.1 Types of Investment Decisions

Tangible Assets: Physical, long-term assets used in operations. Example: Southwest Airlines purchasing new planes.

Intangible Assets: Non-physical assets that provide long-term value. Example: Glaxo-SmithKline investing in R&D expenditures.

1.1.2 Financing Decision

A decision on the sources and amounts of financing.
- Debt Financing – Borrowing money (e.g., issuing bonds, taking loans).
- Equity Financing – Raising capital through investors (e.g., issuing shares).

Capital Structure: The mix of long-term debt and equity financing used to fund the firm's operations.

1.1.3 Real Assets

Real assets are physical or tangible assets used by a company to produce goods and services. They have intrinsic value and directly contribute to operations.

Example:
- Buildings & Factories → Manufacturing plants, office spaces.
- Machinery & Equipment → Machines used in production.
- Land & Natural Resources → Oil reserves, farmland.
- Patents & Trademarks → Intellectual property that provides a competitive edge.

Things to Note
- Real assets generate value for a company by producing goods/services.
- They require investment decisions (Capital Budgeting) on what to buy and when.
- They appreciate or depreciate over time, affecting financial statements.

1.1.4 Financial Assets

Financial assets represent claims on future cash flows generated by real assets. They are not physical but have monetary value and can be traded in financial markets.

Example:
- Stocks & Bonds → Shares in companies or fixed-income securities.
- Bank Deposits → Cash savings that earn interest.
- Accounts Receivable → Money owed to the company by customers.
- Mutual Funds & Derivatives → Investments in financial instruments.

Things to Note:
- Financial assets fund real assets through financing decisions.
- They are liquid and can be bought/sold quickly.
- They determine ownership, investment returns, and risk exposure.

1.2 What is a Corporation

A corporation is a business entity that is legally separate from its owners (shareholders). Unlike sole proprietorships and partnerships, corporations offer limited liability, meaning shareholders are not personally responsible for the company's debts.

- **Separate Legal Entity**: A corporation is treated as a separate "person" under the law.
- **Owned by Shareholders**: Investors hold shares in the company.
- **Board of Directors**: Shareholders elect a board to oversee management.
- **Separation of Ownership & Control**: Shareholders own the company, but managers run it.
- **Permanence**: Corporations exist independently of their owners (even if shareholders change).

1.2.1 Types of Corporations

Corporations can be categorised based on ownership and how they raise capital.

Type	Description	Example
Public Corporation	Traded on stock exchanges, accessible to public investors	Apple, Tesla
Private Corporation	Owned by a small group, not publicly traded	IKEA, SpaceX

1.2.2 Types of Business Organisations

Type	Ownership	Liability	Taxation
Sole Proprietorship	Sole	Unlimited liability	No separate tax (personal tax)
Partnership	Owned by two or more people	Unlimited liability	No separate tax (personal tax)
Corporation	Owned by stockholders	Limited liability	Separate tax (corporate tax + personal tax on dividends)

- Sole proprietors & partners have unlimited liability (personal assets can be used to pay business debts).
- Corporations have limited liability (shareholders' risk is limited to their investment).
- Corporations face double taxation (corporate tax + tax on dividends).
- Limited Liability: Shareholders cannot be held personally liable for corporate debts beyond their investment.

	Sole Proprietorship	Partnership	Corporation
Who owns the business?	The manager	Partners	Stockholders
Are managers and owners separate?	No	No	Usually
What is the owner's liability?	Unlimited	Unlimited	Limited
Are the owner and business taxed separately?	No	No	Yes

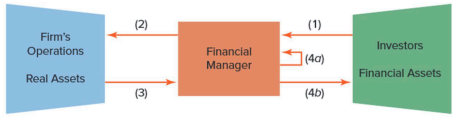
1.3 Who is the Financial Manager?

A financial manager is responsible for overseeing a company's financial health, making investment decisions, and ensuring proper allocation of financial resources.

Chief Financial Officer (CFO):
- Responsible for setting **financial policy and corporate planning**.
- Oversees the **treasurer and controller** to ensure financial stability.

Treasurer:
- Manages **cash flow, capital raising, and banking relationships**.
- Ensures the company has **enough liquidity** for operations.
- Decides on **investment and financing strategies**.

Controller:
- Handles **financial reporting, accounting, and taxes**.
- Ensures compliance with **regulatory and legal standards**.
- Prepares **financial statements** for management and investors.



(1) Cash raised from investors
(2) Cash invested in firm
(3) Cash generated by operations
(4a) Cash reinvested
(4b) Cash returned to investors

1.4 Goals of Corporation

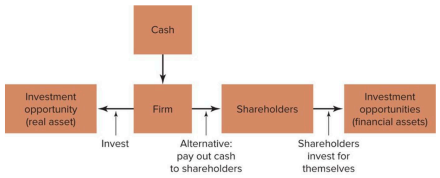
A corporation's primary goal is to maximise shareholder wealth rather than just maximising profits. Let's break down why this is the case.

The goal is to maximise the current market value of shareholders' investment in the firm because this approach ensures that the company focuses on long-term value creation instead of just short-term profits. By making strategic investments that increase stock prices and returning value to shareholders through dividends or stock buybacks.

Why not Profit Maximisation
1. A company could maximise short-term profits but hurt long-term growth. Example: Cutting R&D expenses today increases profits but hurts future innovation.
2. Companies can **inflate profits** using accounting tricks without actually increasing real value. Example: Delaying expenses or recognizing revenue early to show higher profits.

Opportunity Cost of Capital: The minimum acceptable rate of return a company must earn on investments to be worthwhile for shareholders.

The Investment Trade-off



1.5 Agency Problem

The agency problem arises when managers (agents) prioritize their own interests over shareholders' (principals) interests. Corporate governance mechanisms help align managerial actions with shareholder wealth maximisation. Example A CEO may approve high executive salaries or expensive perks even if it does not benefit shareholders.

Stakeholder: Anyone with a **financial interest** in the corporation (e.g., employees, suppliers, customers, government). **Shareholder:** The **owners** of the company who expect value maximisation.

1.5.1 Agency Cost

- Direct Costs → Excessive executive perks, wasteful spending.
- Indirect Costs → Lost shareholder value due to poor decision-making.
- Monitoring Costs → The cost of governance structures to align incentives (e.g., audits, board oversight).

1.5.2 Solution

Corporations implement executive compensation plans and strong corporate governance mechanisms to reduce conflicts.

Executive Compensation
- High-ranking executives get **lower base salaries** but **higher performance-linked incentives**.
- This motivates managers to **increase company value** instead of focusing on personal gain.

Stock Options:
- Managers receive **company shares**, aligning their interests with shareholders.
- If the stock price increases, they benefit **only if shareholders also benefit**.

Corporate Governance: A system of rules, regulations, and corporate practices that protect shareholders and investors from mismanagement.

Elements of Good Corporate Governance:

Element	Purpose
Legal Requirements	Ensures financial transparency and compliance with laws.
Board of Directors	Oversees management and ensures accountability.
Activist Shareholders	Investors push for better corporate practices.
Takeovers	If managers underperform, external investors may acquire and restructure the company.
Investor Information	Ensures accurate financial reporting and transparency.

2 Accounting Essentials

2.1 Balance Sheet

A balance sheet is one of the key financial statements used by companies to provide a snapshot of their financial position at a given point in time.

The balance sheet follows the fundamental accounting equation:

$$\text{Assets} = \text{Liabilities} + \text{Equity}$$

Assets Assets are divided into **current assets** and **non-current (fixed) assets**.

Assets	Description
Current Assets	Short-term assets convertible to cash within a year.
Cash & Cash Equivalents	Physical cash, bank deposits, and short-term investments.
Accounts Receivable	Money owed by customers for credit sales.
Inventory	Raw materials, work-in-progress, and finished goods.
Prepaid Expenses	Payments made in advance for future expenses.
Non-Current Assets	Long-term assets used in operations.
Property, Plant & Equipment (PPE)	Factories, machinery, buildings, and land.
Intangible Assets	Patents, trademarks, goodwill, and brand value.

Liabilities Liabilities are the **debts and obligations** of a company.

Liabilities	Description
Current Liabilities	Debts payable within one year.
Accounts Payable	Money owed to suppliers for purchases.
Short-term Debt	Loans or obligations due within a year.
Accrued Expenses	Expenses incurred but not yet paid (e.g., salaries, taxes).
Non-Current Liabilities	Long-term debts beyond a year.
Long-term Debt	Bonds or loans payable over multiple years.
Deferred Tax Liabilities	Taxes owed in the future due to timing differences.

Equity Equity represents **the residual interest in the company's assets** after deducting liabilities.

Equity	Description
Common Stock	Money raised by issuing shares.
Retained Earnings	Profits reinvested in the business rather than distributed as dividends.
Additional Paid-in Capital	Extra money received above the par value of shares.
Treasury Stock	Shares that were issued but later repurchased by the company, reducing available shares in the market.

2.1.1 Net income

Net income represents the company's total earnings after all expenses are deducted.

Basic Formula: $\text{Total Revenue} - \text{Total Expenses}$

Expanded Formula: $\text{Revenue} - \text{Cost of Goods Sold (COGS)} - \text{Operating Expenses} - \text{Interest} - \text{Taxes}$

Alternative Formula Using EBIT: $\text{Earnings Before Interest \& Taxes (EBIT)} - \text{Interest} - \text{Taxes}$

2.1.2 Working Capital Formula

Working Capital represents a company's ability to cover its short-term obligations and is calculated as:

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

2.1.3 Formula for Total Shareholders'

Shareholders' Equity (SE) represents the net worth of a company that belongs to its shareholders after all liabilities are deducted from assets. It is the portion of a company's resources that shareholders truly own. Also can be known as book value

$$\text{Total Shareholders' Equity} = \text{Common Stock} + \text{Additional Paid-in Capital} + \text{Retained Earnings} - \text{Treasury Stock}$$

or

$$\text{Shareholders' Equity} = \text{Total Assets} - \text{Total Liabilities}$$

2.2 Book and Market Value

Book Value: Book value represents the accounting value of an asset, liability, or equity as recorded on a company's balance sheet.

$$\text{Book Value of Equity} = \text{Total Assets} - \text{Total Liabilities}$$

Things to note:
1. Historical Cost – The original cost of an asset minus depreciation.
2. Backward-Looking – Based on past transactions, not current market conditions.
3. Stable Value – Changes only due to depreciation, amortisation, or asset write-offs.

Market Value: Market value is the **current price** at which an asset, liability, or equity could be bought or sold in the market.

$$\text{Market Value of Equity} = \text{Stock Price} \times \text{Total Outstanding Shares}$$

Things to note:
1. Forward-Looking – Based on future expectations and investor sentiment.
2. Fluctuates Frequently – Changes due to market conditions, company performance, and economic trends.
3. More Relevant for Investors – Investors care more about market value when buying or selling assets or stocks.

2.3 Income Statement

An income statement, also known as a profit and loss (P&L) statement, is a key financial statement that provides insight into a company's profitability over a specific period (e.g., a quarter or a year). It summarizes revenues, expenses, and net income, helping stakeholders assess the financial performance of a business.

Revenue:
1. **Net Sales** – This represents the total revenue earned from selling products or services before any deductions.
2. **Other Income** – Any income that is not directly related to the core business operations. This could include rent from leased properties, gains from investments, or fees.

Cost of Goods Sold (COGS):

The direct costs of materials, labor, and production involved in selling goods.

Importance: Higher COGS means lower gross profit; companies aim to manage it efficiently.

Operating Expenses:
- **Selling, General & Administrative (SG&A) Expenses** – Includes marketing, salaries, rent, utilities, and office supplies. These are necessary to keep the business running.
- **Depreciation** – The loss of value of tangible assets (e.g., machinery, buildings, equipment) over time due to wear and tear.

Operating Profit (EBIT)
- This is the company's profit from core operations before deducting interest and taxes.
- Formula:

$$\text{EBIT} = \text{Net Sales} + \text{Other Income} - \text{COGS} - \text{SG\&A} - \text{Depreciation}$$

Interest and Taxes
- **Interest Expense** – The cost of borrowing money (e.g., interest payments on loans and bonds).
- **Taxable Income** – The amount of profit subject to taxation, calculated as:

$$\text{Taxable Income} = \text{EBIT} - \text{Interest Expense}$$

- **Taxes Paid** – The actual tax paid to the government.

Net Income:

This is the final profit the company retains after subtracting all expenses.

Distribution of Net Income:
- **Dividends** – The portion of profits paid to shareholders.
- **Addition to Retained Earnings** – The remaining profit reinvested into the company for growth.

2.4 Cash Flow

Depreciation is a non-cash expense: It reduces reported profits on the income statement, but no actual cash is spent when recording depreciation.

Capital expenditures are not deducted from profits: When a company buys new capital assets (e.g., machinery, buildings), the cost is capitalized and not immediately deducted from profits. However, these purchases represent a real cash outflow.

Factor	Profits (Accounting Basis)	Cash Flow (Actual Cash Movement)
Depreciation	Deducted from profits	Added back to calculate cash flow
Capital Expenditures	Not deducted from profits	Subtracted because it is a real cash expense
Accrual Accounting	Recognizes revenue and expenses when incurred	Recognizes cash when received or paid
Working Capital	Ignored in profit calculation	Affects cash flow when receivables, payables, or inventory change

Operating Cash Flow:

$$\text{Operating Cash Flow} = \text{Net Income} + \text{Depreciation} + \text{Changes in Working Capital}$$

or

$$\text{Operating Cash Flow} = \text{EBIT} + \text{Depreciation} - \text{Taxes} + \text{Changes in Working Capital}$$

Free Cash Flow

$$\text{Free Cash Flow} = \text{Net Income} + \text{Interest} + \text{Depreciation} - \text{Additions to Net Working Capital} + \text{Cash Flow from Investments}$$

Additions to Net Working Capital

$$\text{Additions to Net Working Capital} = \text{Net Working Capital}_{\text{Previous}} - \text{Net Working Capital}_{\text{Current}}$$

2.5 Tax

$$\text{Total Tax} = \sum(\text{Tax Rate} \times \text{Taxable Income in that Bracket})$$

$$\text{Average Tax Rate} = \frac{\text{Total Tax}}{\text{Total Income}}$$

3 Financial Statement Analysis

3.1 Market Value Metrics

3.1.1 Market Capitalisation

Market capitalization (market cap) is the total value of a company's outstanding shares of stock, calculated as, the formula to calculate it is below:

$$\text{Market Capitalization} = \text{Stock Price} \times \text{Outstanding Shares}$$

3.1.2 Markey Value Added

Market Value Added measures how much value a company has created for shareholders over time. It is calculated as:

$$\text{MVA} = \text{Market Capitalization} - \text{Equity}$$

To express the value creation as a percentage, we divide MVA by equity:

$$\text{MVA Percentage} = \frac{\text{Market Value Added}}{\text{Equity}} \times 100$$

3.1.3 Market-to-book Ratio

$$\frac{\text{Market Value Added}}{\text{Book Value}}$$

3.1.4 Drawbacks of Market Value Metrics

- Does Not Reflect Debt
  - Market cap ignores a company's debt.
  - A low market cap + no debt = more stable than high market cap + high debt.
  - High debt increases financial risk, especially during downturns.
- Affected by Market Sentiment
  - Stock prices fluctuate due to speculation & external events.
  - A false lawsuit can drop share price, even if the company is strong.
  - Market cap may not reflect actual growth.
- No Insight Into Profitability
  - High market cap ≠ high profits.
  - A company can have huge valuation but declining earnings.
  - Market cap ≠ business performance.

3.2 Economic Value Added (EVA)

Economic Value Added (EVA) to put simply it tells if the company is making any income after removing the cost of capital.

$$\text{EVA} = \text{After-tax Operating Income} - (\text{Cost of Capital} \times \text{Total Capitalization})$$

After-tax Operating Income:

$$\text{After-tax Operating Income} = \text{EBIT} \times (1 - \text{Tax Rate})$$

or

$$\text{After-tax Operating Income} = (1 - \text{Tax Rate}) \times \text{Interest Expense} + \text{Net Income}$$

3.2.1 Advantage of EVA

Recognises Opportunity Costs

- EVA ensures that companies cover their opportunity costs before claiming they are creating value.
- This means a business must generate enough profit to at least cover the cost of capital before it is considered successful.
- The opportunity cost is factored in through the cost of capital

Makes Cost of Capital Visible

- EVA clearly shows managers that they need to generate returns that are at least equal to the cost of capital.
- It provides a concrete target: earn more than the cost of capital on assets employed.

Helps Improve Efficiency

- Managers can boost EVA by removing underperforming assets that do not contribute enough to profits.
- For example, managers can sell or repurpose it to improve EVA if a factory or equipment is not generating enough returns.

3.2.2 Disadvantage of EVA

Focuses Only on Current Performance

- EVA does not account for all factors that influence stock prices, such as market trends or investor sentiment.
- It only looks at current financial performance and ignores things like brand value or future potential.

Uses Book Values (Which May Not Reflect True Market Value)

- EVA relies on the book value of assets, which may not represent their true worth in today's market.
- Example 1: Marketing Investments
  - If a company (like Home Depot) spent millions on marketing to build its brand over time, EVA does not recognize this investment as an asset.
- Example 2: Older Assets May Be Undervalued
  - A company may have bought assets at low prices in the past, but their market value today is much higher.
  - EVA might underestimate the company's true value because it looks at historical costs, not real-time market values.
- Example 3: Low Return Doesn't Always Mean Poor Decisions
  - A company might show low EVA today due to past bad investments.
  - However, those assets might still be useful and valuable in the long run, so a low EVA doesn't always mean poor management.

3.3 Accounting Rates of Return

3.3.1 Return on Capital

ROC considers both debt and equity, making it useful for evaluating a company's overall capital efficiency.

$$\text{Return on capital} = \frac{\text{after-tax operating income}}{\text{total capitalization}}$$

3.3.2 Return on Assets

ROA focuses on how well a company uses its assets to generate profit.

$$\text{Return on assets} = \frac{\text{after-tax operating income}}{\text{total assets}}$$

3.3.3 Return on Equity

ROE looks at profitability from a shareholder's perspective, showing how well equity is being used.

$$\text{Return on equity} = \frac{\text{net income}}{\text{equity}}$$

3.4 Measuring Efficiency

3.4.1 Asset Turnover Ratio

How efficiently a company uses its assets to generate sales. A higher ratio means the company is using its assets effectively to drive revenue. A lower ratio suggests inefficiency, meaning assets are not being fully utilized.

$$\text{Asset Turnover Ratio} = \frac{\text{Sales}}{\text{Total assets at start of year}}$$

or

$$\text{Asset Turnover Ratio} = \frac{\text{Sales}}{\text{Average Total assets}}$$

We can find the sales at the Net Sales column

3.4.2 Inventory Turnover

How quickly a company sells and replaces its inventory. A higher ratio means inventory is selling quickly, which is good for cash flow. A lower ratio may indicate slow-moving inventory, which could lead to higher storage costs or outdated stock.

$$\text{Inventory Turnover Ration} = \frac{\text{Cost of goods sold}}{\text{Inventory at start of year}}$$

$$\text{Average Days in Inventory} = \frac{\text{Inventory at start of year}}{\frac{\text{Cost of goods sold}}{365}}$$

3.4.3 Receivables Turnover

How quickly a company collects money from customers who bought on credit.

$$\text{Receivables Turnover} = \frac{\text{Sales}}{\text{Receivables at start of year}}$$

$$\text{Average Collection Period} = \frac{\text{Receivables at start of year}}{\frac{\text{Sales}}{365}}$$

3.4.4 Days Payable Outstanding

To calculate the average number of days it takes to pay its bills

$$\text{Days Payable Outstanding} = \frac{\text{Accounts Payable at Start of Year}}{\frac{\text{Cost of Good Sold}}{365}}$$

3.5 DuPont System

3.5.1 Profit Margin

$$\text{Profit Margin} = \frac{\text{Net Income}}{\text{Sales}}$$

$$\text{Operating Profit Margin} = \frac{\text{After-tax Operating Income}}{\text{Sales}}$$

3.5.2 ROA

A new way to find ROA

$$\text{ROA} = \text{Asset Turnover} \times \text{Operating Profit Margin}$$

$$\text{ROA} = \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{After-tax Operating Income}}{\text{Sales}}$$

Example

Sappy Syrup has a profit margin below the industry average, but its ROA equals the industry average. How is this possible?

The firm must compensate for its below-average profit margin with an above-average turnover ratio. Remember that ROA is the product of operating margin × turnover.

3.6 Measuring Financial Leverage

Long-term debt ratio

$$\text{Long-Term Debt Ratio} = \frac{\text{Long-Term Debt}}{\text{Long-Term Debt} + \text{Equity}}$$

Long-term Debt-Equity ratio

$$\text{Long-Term Debt-Equity Ratio} = \frac{\text{Long-Term Debt}}{\text{Equity}}$$

Total Debt Ratio

$$\text{Total Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

Total Assets is $\text{Total Liabilities} + \text{Equity}$

Times Interest Earned (TIE)

$$\text{Times Interest Earned} = \frac{\text{Earnings Before Interst and Taxes}}{\text{Interest Expense}}$$

Cash Coverage Ratio

$$\text{Cash Coverage Ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest Payments}}$$

A new way to calculate ROE

$$\text{ROE} = \text{Leverage Ratio} \times \text{Asset Turnover} \times \text{Operating Profit Margin} \times \text{Debt Burden}$$

$$\text{ROE} = \frac{\text{Assets}}{\text{Equity}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{After-tax Operating Income}}{\text{Sales}} \times \frac{\text{Net Income}}{\text{After-taz operating income}}$$

Example

Sappy Syrup's ROA equals the industry average, but its ROE exceeds the industry average. How is this possible

If ROA equals the industry average but ROE exceeds the industry average, the firm must have above-average leverage. As long as ROA exceeds the borrowing rate, leverage will increase ROE.

3.7 Measuring Liquidity

Net working capital to total assets ratio

$$\text{Net working capital to total assets ratio} = \frac{\text{Net working capital}}{\text{Total Assets}}$$

Net working capital is $\text{Current Assets} - \text{Current Liabilities}$

Current Ratio

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

Quick Ratio

$$\text{Quick Ratio} = \frac{\text{Cash} + \text{Marketable Secutities} + \text{Receivables}}{\text{Current Liabilities}}$$

Cash Ratio

$$\text{Cash Ratio} = \frac{\text{Cash} + \text{Marketable Secutities}}{\text{Current Liabilities}}$$