1. CORPORATE GOVERNANCE AND AGENCY PROBLEM

Investing and Financing Decisions

- Capital Budgeting Decision = investment decision = capital expenditure (CAPEX) decision
  - Decision to invest in tangible or intangible assets
- Financing decision
  - Decision on the sources and amounts of financing
- Capital structure
  - Mix of long-term debt and equity financing
- Real assets
  - Assets used to produce goods and services
- Financial assets
  - Financial claims to the income generated by the firm's real assets

Agency Problem & Cost

- Problem: Managers are agents for stockholders and are tempted to act in their own interests rather than maximising value
- Cost: Value lost from agency problems or from the cost of mitigating agency problems
- Executive compensation: a fixed base salary plus an annual award tied to earnings
- Corporate governance: the laws, regulations, institutions and corporation practices that protect shareholders and other investors
- Elements of good corporate governance:
  - Legal requirements
  - Board of directors
  - Activist shareholders
  - Takeovers
  - Information for investors: accounting and reporting standards

Corporation

- Corporation: A business organized as a separate legal entity owned by shareholders
- Types of organisations
  - Sole proprietorships: owned and controlled by individual
  - Partnerships: owned and controlled by at least two people
  - Corporations: separate legal entity (owner has limited liability & taxed separately)
  - Others:
  - Limited liability partnerships or limited liability companies: limited liability and no double taxation
  - Professional Corporations: corporation with limited liability, however professionals can be sued for malpractice
  - Limited liability → the owners of the corporation are not personally liable for its obligations

Financial Manager

- Chief Financial Officer: responsible for financial policy and corporate planning
- Treasurer: responsible for cash management, raising of capital and banking relationships
- Controller: responsible for preparation of financial statements, accounting and taxes

Goals of the Corporation

- Shareholders desire wealth maximisation: maximise current market value of shareholder's investment in the firm
- Opportunity cost of capital: minimum acceptable rate of return on capital investment is set by the investment opportunities available to shareholders in financial markets

2. ACCOUNTING ESSENTIALS

Balance Sheet

- Financial statement that shows the value of the firm's assets and liabilities at a particular time

Assets	Liabilities and Equity
Current assets: •Cash and marketable securities •Accounts receivables •Inventories Total current assets Fixed assets: •Tangible fixed assets •Property, plant and equipment •Less accumulated depreciation Net fixed assets Total assets	Current liabilities: •Debt due for repayment •Accounts payable Total current liabilities Long-term debt Total liabilities Shareholders' equity: •Common stock and other paid-in capital •Retained earnings •Treasury stock Total liabilities and equity

Balance sheets formulas

- Retained earnings = net income – dividends
- Net fixed assets = total assets – accumulated depreciation

Book Value and Market Value

- Book value: value of assets or liabilities according to balance sheet
  - Backward-looking: historical cost adjusted for depreciation
- Market value: value of assets or liabilities were they to be resold in a market
  - Depends on profits investors expect the assets to provide
- Equity and assets MV usually > BV
- Short-term liability MV ≈ BV
- Long-term liability MV may be > or < BV

Income statement

- Financial statement that shows the revenues, expenses and net income of a firm over a period of time

Net sales
Other income
Cost of goods sold
Selling, general & administrative expenses
Depreciation
Earnings before interest and income tax
Interest expense
Taxable income
Taxes
Net income
  Allocation of net income
    Dividends
    Addition to retained earnings

Earnings before interest and taxes (EBIT)

- = total revenues + other income – costs – depreciation
- Net income = taxable income - taxes

Profits vs Cash Flow

Profits: recognized in periods 2 and 3 when sales take place; $150 – $100 = $50
In period 2, half the units are sold for $150 but no cash is collected, so the entire $150 is treated as an increase in accounts receivable. Half the $200 cost of production is recognized, and a like amount is taken out of inventory.
In period 3, the firm sells another $150 of product but collects $150 from its previous sales, so there is no change in outstanding accounts receivable. Net cash flow is the $150 collected in this period on the sale that occurred in period 2. In period 4, cash flow is again $150, as the accounts receivable from the sale in period 3 are collected.

Formulas

- Shareholders' equity = total assets – total liabilities
- Net working capital = current assets – current liabilities
- Taxable income = revenue – cost of goods sold – depreciation – interest expense
- Gross investment = increase in net fixed assets + depreciation
- Change in net fixed assets = (purchase – sale) – depreciation
- Cash provided by operations = net income + depreciation + decrease in current assets + increase in current liabilities

Statement of cash flows

- Financial statement that shows the firm's cash receipts and cash payments over a period of time
- Change in cash = Δaccount payable + Δlong term liabilities + Δcapital stock - Δaccount receivable - Δinventory - purchase (fixed assets) + sale (fixed assets) + depreciation + net income – dividend
- Cash flow (net increase in cash and cash equivalents) = cash provided by operations + cash flows from investment + cash provided for financing activities
- Net cash flow = net income + depreciation expense

Cash provided by operations:
Net income
Depreciation
Net income
Total decrease in working capital items
  Decrease in accounts receivables
  Decrease in inventories
  Decrease in other current assets
  Increase in accounts payable
  Increase in other current liabilities

Cash flows from investments:
Capital expenditure
Sales (acquisitions) of long-term assets
Other investing activities

Cash provided for financing activities:
Increase in short-term debt
Increase in long-term debt
Dividends
Repurchases of stock
Others

- Examples (net cash balance = NCB):
  - Inventories increased → NCB decrease
  - Accounts payable decreased → NCB decrease
  - Issues additional common stock → NCB increase
  - Buys new equipment → NCB decrease

Free cash flow

- Cash available for distribution to investors after firm pays for new investments or additions to working capital
- Free cash flow = net income + interest + depreciation – additions to net working capital + cashflow from investment

Personal Income tax

- Marginal tax rate is the tax that the individual pays on each extra dollar of income
- Average tax rate is the total tax bill divided by total income

3. FINANCIAL STATEMENT ANALYSIS

Understanding Value

- Shareholder value (MVA, market-to-book ratio)
- Investment (EA, ROR)
  - Efficient use of assets (turnover ratios)
  - Profits from sales (operating profit margin)
- Financing
  - Financial leverage (debt, interest coverage ratios)
  - Liquidity for coming year (current, quick, cash ratios)

Market Value Metrics

- Market capitalisation
  - Total market value of equity, equal to share price times number of shares outstanding
  - Market capitalisation = (#shares) x (price per share)
- Market value added
  - Market capitalisation minus book value of equity
  - MVA = market capitalisation - equity
- Market-to-Book ratio
  - Ratio of market value of equity to book value of equity
- Market value equals the value of his patent plus the value of the production plant: $75,000,000 + $2,400,000 = $77,400,000.

Market Value Metrics Drawbacks

- Market value of the company's shares reflects investors' expectations about future performance
- Market values fluctuate because of many risks and events that are outside the financial manager's control
- Cannot look up the market value of privately owned companies whose shares are not traded

Economic Value Added

- EVA: Net income minus a charge for the cost of capital employed; also called residual income
- Residual Income: Net dollar return after deducting the cost of capital
- EVA = After tax operating income - (cost of capital × total capitalization)
- After tax operating income:
- = (1 - tax rate) × interest expense + net income
- = EBIT × (1 - tax rate)
- Derivations of ^:
  - EBIT = Net Income + Taxes + Interest
  - = Net Income + Taxable Income * t + Interest
  - = Net Income + (EBIT-Interest) * t + Interest
  - EBIT (1-t) = Net Income + Interest - Interest * t
  - EBIT (1-t) = Net Income + (1-t) * Interest
- Total capitalisation = long-term debt + shareholders' equity

Rates of Return (ROR)

- Return on capital (ROC)
  - Net income plus after-tax interest as a percentage of long-term capital
  - $= \frac{after-tax\ operating\ income}{total\ capitalisation}$
- Return on assets (ROA)
  - Net income plus after-tax interest as a percentage of total
  - $= \frac{after-tax\ operating\ income}{total\ assets}$
  - $= \frac{sales}{assets} \times \frac{after-tax\ operating\ income}{sales}$
  - = asset turnover × operating profit margin
- Return on equity (ROE)
  - Net income as a percentage of shareholders' equity
  - $= \frac{net\ income}{equity}$
  - $= \frac{assets}{equity} \times \frac{sales}{assets} \times \frac{after-tax\ operating\ income}{sales} \times \frac{net\ income}{after-tax\ operating\ income}$
  - = leverage ratio × asset turnover × operating profit margin × debt burden
- Profit margin = $\frac{net\ income}{sales}$
- ROE measures return to equity as net income divided by the book value of equity.
- ROC and ROA measure the return to all investors, including interest paid as well as net income to shareholders.
- ROC measures return versus long-term debt and equity.
- ROA measures return versus total assets.
- ROE = $\frac{assets}{equity} \times ROA \times \frac{net\ income}{after-tax\ operating\ income}$
- Net income = EBIT – interest – taxes
- $\frac{debt}{equity} = 1 \rightarrow debt = equity$
- $\rightarrow total\ assets = 2 \times equity$
- Tax rate = $\frac{taxes}{EBT}$ (EBT = EBIT – I)

Advantages of EVA

- EVA recognises that companies need to cover their opportunity costs before they add value
- EVA makes the cost of capital visible to operating managers
- A plant or divisional manager can improve EVA by reducing assets that are not making an adequate contribution to profits

Disadvantages of EVA

- Show current performance and are not affected by all the other things that move stock market
- Use book values
  - Older assets may be grossly undervalued in today's market
  - Past decisions ≠ today

Measuring efficiency

- Asset turnover ratio = $\frac{sales}{total\ assets\ at\ start\ of\ year}$ = $\frac{sales}{average\ total\ assets}$
- Inventory turnover = $\frac{cost\ of\ goods\ sold}{inventory\ at\ start\ of\ year}$
  - Inventory turnover ratio of 10.7 is interpreted as: firm has sufficient inventories to maintain sales for 365/10.7 = 34.1 days
- Average days in inventory = $\frac{inventory\ at\ start\ of\ year}{cost\ of\ goods\ sold\ /\ 365}$
- Receivables turnover = $\frac{sales}{receiveables\ at\ start\ of\ year}$
- Average collection period = $\frac{receiveables\ at\ start\ of\ year}{average\ daily\ sales}$

Measuring financial leverage

- Long-term debt ratio = $\frac{long-term\ debt}{long-term\ debt + equity}$
- Long-term debt-equity ratio = $\frac{long-term\ debt}{equity}$
- Total debt ratio = $\frac{total\ liabilities}{total\ assets}$
- Times interest earned = $\frac{EBIT}{interest\ payments}$
- Cash coverage ratio = $\frac{EBIT+depreciation}{interest\ payments}$

Formulas

- Net income = EBIT – interest – taxes
- Tax rate = $\frac{taxes}{EBIT}$
- If no debt, ROE = ROA & assets = $\frac{debt+equity}{equity}$

Measuring liquidity

- Net working capital to total assets ratio = $\frac{net\ working\ capital}{total\ assets}$
- Current ratio = $\frac{current\ assets}{current\ liabilities}$
- Quick ratio = $\frac{cash + marketable\ securities + receiveables}{current\ liabilities}$
- Cash ratio = $\frac{cash + marketable\ securities}{current\ liabilities}$

Mergers (comparing two firms)

- Sales: takes the larger of the two
- Profits: sum of both
- Assets: sum of both
- Asset turnover: Reduced because the merged firm has more assets. This exactly offsets the benefit of the higher profit margin
- Profit margin: increases
- ROA: unchanged
- Above average asset turnover ratios ≠ above-average ROAs
  - In industries with rapid asset turnover, competition forces prices down, reducing profit margins

Assignment Questions

- An increase in accounts receivable reduces cash flow by $29,000.
- An increase in accounts payable increases cash flow by $14,500.
- A decrease in inventory increases cash flow by $3,600. The total impact is a reduction in cash flow by $10,900.
- Depreciation expense increase → net income decrease & cash flow(= net income + depreciation) increase
- What would happen to net income and cash flow if depreciation were increased by $2.40 million?
- Net income would decrease by $1.896million ((1 – 0.21) x $2.40 = $1.896).
- Cash flow would increase by $0.504million ($2.40 - $1.896 = $0.504).
- Would you expect the change in depreciation to have a positive or negative impact on the firm's stock price?
- The impact on stock price is likely to be positive. Cash available to the firm would increase. The reduction in net income would be recognized as resulting entirely from accounting changes, not as a consequence of any changes in the underlying profitability of the firm.
- What would be the impact on cash flow if depreciation was $2.40 million and interest expense was $3.40 million?
- If interest expense was $1.00 million higher and the depreciation was $1.00 million lower, the taxes will be the same, but the drop in depreciation would cause a decrease in cash flow by $1.00 million.