Financial Formulas

Financial Statements and Cash Flow

- Assets≡Liabilities + Stockholders' Equity
- Net working capital=Current Assets – Current Liabilities
- Revenue−Expenses≡Income

Financial Statement Analysis

- $\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$
- $\text{Quick ratio} = \frac{\text{Cash +Marketable securities +Accounts receivable}}{\text{Current liabilities}}$
- $\text{Cash ratio} = \frac{\text{Cash and cash equivalents}}{\text{Current liabilities}}$
- $\text{Operating cash flow ratio} = \frac{\text{Cash flow from operations}}{\text{current liabilities}}$
- $\text{Total Debt Ratio} = \frac{\text{Total assets}-\text{Total stockholders' equity}}{\text{Total assets}}$
- $\text{Equity Multiplier} = \frac{\text{Total assets}}{\text{Total stockholders' equity}}$
- $\text{Interest coverage ratio} = \frac{\text{EBIT}}{\text{Interest expense}}$
- Inventory Turnover = Cost of Goods Sold / Inventory
- $\text{Days' sales in inventory (DSI)} = \frac{365 \text{ days}}{\text{Inventory turnover}}$
- $\text{Total asset turnover} = \frac{\text{Total revenues}}{\text{Total assets}}$
- $\text{Gross profit margin} = \frac{\text{Gross Profit}}{\text{Total Revenues}}$
- $\text{Net profit margin} = \frac{\text{Net income}}{\text{Total revenue}}$
- $\text{Return on Assets (ROA)} = \frac{\text{Net income}}{\text{Total assets}}$
- $\text{Return on Equity (ROE)} = \frac{\text{Net income}}{\text{Total equity}}$
- $\text{ROE} = \text{Net Profit Margin} \times \text{Total Asset Turnover} \times \text{Equity Multiplier}$
- Price to earnings ratio (P/E ratio) = Current share price/Earnings per share

- Market capitalization (market cap) = Current price per share × Shares outstanding

TIME VALUE OF MONEY

- Future value: $FV = PV \times (1 + r)^T$
- Present value: $PV = \frac{FV}{(1+r)^T}$
- Net present value: $NPV = C_0 + \sum_{t=1}^{T} \frac{C_t}{(1+r)^t}$
- The internal rate of return (IRR) has to satisfy the following equation:

$$0 = C_0 + \frac{C_1}{1 + IRR} + \frac{C_2}{(1 + IRR)^2} + \frac{C_3}{(1 + IRR)^3} + \cdots + \frac{C_T}{(1 + IRR)^T}$$

- Effective annual rate: $EAR = (1 + \frac{r}{m})^m - 1$
- Future value based on continuous compounding: $FV = PV \times e^{rT}$
- Perpetuity: $PV = \frac{C}{r}$
- Growing perpetuity: $PV = \frac{C}{r-g}$
- Annuity: $PV = \frac{C}{r}[1 - \frac{1}{(1+r)^t}]$
- Growing annuity: $PV = \frac{C}{r-g}[1 - (\frac{1+g}{1+r})^t]$