Financial Statements & Free Cash Flows

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Income Statement

Sales
- COGS (Cost of Goods Sold)
- Depreciation
EBIT
- Interest
= EBT
- Tax
= Net Income
Addition to Retained Earnings
Dividends

Depreciation

- We will assume PP&E will be straight-line depreciated over the equipment's life

- Example: You buy a pizza oven for $100 and will use it for five years. Each year, we will incur $100/5 = $20 of depreciation expense

Balance Sheet

Assets	**Liabilities & Equity**
Cash	Accounts Payable
Accounts Receivable	Line of Credit
Inventory	Current Portion
Current Assets	Current Liabilities
	Long-term Debt
	Total Liabilities
Plants, Property & Equipment (PP&E)	Common Stock
Accumulated Depreciation	Retained Earnings
Net Fixed Assets	Equity
Total Assets	**Total Liabilities & Equity**

Managerial Balance Sheet

Assets	**Liabilities & Equity**
Cash	Short-term Debt
Working Capital Requirements = AR + Inventory - AP	Long-term Debt
Net Fixed Assets	Equity
Total Assets	**Total Liabilities & Equity**

Asset Use Efficiency

- $\text{Asset Turnover} = \frac{\text{Sales}}{\text{Assets}}$
  - How much sales is generated per $1 asset invested

Asset Use Efficiency

- $\text{Receivables Turnover} = \frac{\text{Sales}}{\text{Accounts Receivable}}$
  - How many times we collected and relent credit
- $\text{Inventory Turnover} = \frac{\text{COGS}}{\text{Inventory}}$
  - How many times sold inventory over year
- $\text{Payables Turnover} = \frac{\text{Purchases}}{\text{Accounes Payable}}$
  - How efficiently a company is paying its suppliers
  - Purchases = COGS + Change Inventory

Asset Use Efficiency

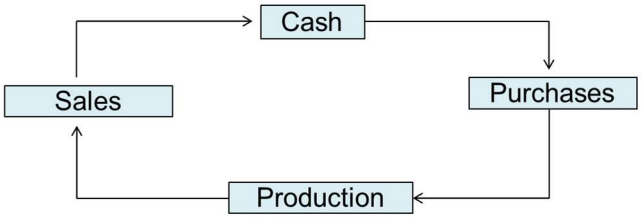
- $\text{Days Sales in Receivables} = \frac{\text{365 Days}}{\text{Receivables Turnover}}$
  - How long it takes to collect receivables
- $\text{Days Sales in Inventory} = \frac{\text{365 Days}}{\text{Inventory Turnover}}$
  - How long inventory sits before its sold
- $\text{Days Payable} = \frac{\text{365 Days}}{\text{Payables Turnover}}$
  - How long it takes to pay suppliers

Operating Cycle

The firm's investments:

- **Fixed assets**: typically long-term investments
- **Operating (current) assets**: needed to run a firm's operating cycle

Operating cycle:



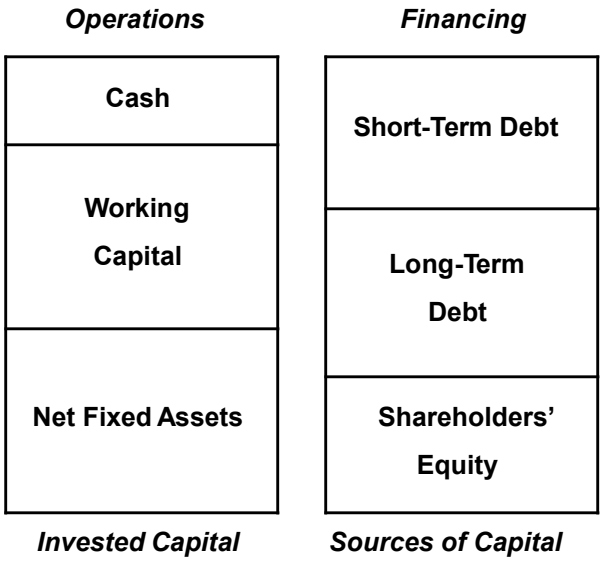
Working Capital Requirements

Working capital is the investment that a firm must make to support its operating cycle

Working Capital Requirements =

Inventories + Accounts Receivable – Accounts Payable

Managerial Balance Sheet



Operating Efficiency

Cash Conversion Cycle

$$\begin{aligned} \text{CCC} = &\ \text{Days Inventory} \\ &+ \text{Days Receivable} \\ &- \text{Days Payable} \end{aligned}$$

Profitability Measures

- Profit Margin= $\frac{\text{NI}}{\text{Sales}}$
  - How much profit is generated for each $1 of sales
- Return on Assets= $\frac{\text{NI}}{\text{Assets}}$
  - Profit per dollar of asset
- Return on Equity= $\frac{\text{NI}}{\text{Equity}}$
  - Profit generated for each dollar of equity

Return on Assets

$$\begin{aligned}\text{RoA} &\equiv \frac{\text{NI}}{\text{Assets}} \\ &= \frac{\text{NI}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \\ &= \text{Profit Margin} \times \text{Asset Turnover}\end{aligned}$$

The return on assets can be decomposed into:

- Profit margin: a measure of operating efficiency
- Asset turnover: a measure of asset use efficiency

Return on Equity

$$\begin{aligned}\text{RoE} &\equiv \frac{\text{NI}}{\text{Equity}} \\ &= \frac{\text{NI}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}} \\ &= \text{RoA} \times \text{Financial Leverage}\end{aligned}$$

The return on equity can be decomposed into:

- Return on Assets: how efficiently a firm uses its assets to generate profit
- Financial leverage: how much of the firm is financed with debt

Sustainable Growth

The internal growth rate g is how fast the firm can grow without external sources of financing:

$$g = RoA \times b$$

where b is how much of the firm's net income is reinvested into retained earnings (i.e. $b = 1 - \text{Payout Ratio}$)

Sustainable Growth

$$g^* = \text{Profit Margin} \times \text{Asset Turnover} \times \text{Plowback}$$

A firm's ability to sustain growth without financing depends on:

1. **Profit margin:** An increase in profit margin will increase the firm's ability to generate funds internally and thereby increase its sustainable growth.
2. **Total asset turnover:** An increase in the firm's total asset turnover increases the sales generated for each dollar in assets. This decreases the firm's need for new assets as sales grow and thereby increases the sustainable growth rate.
3. **Dividend policy:** A decrease in the percentage of net income paid out as dividends will increase the retention ratio. This increases both internally generated equity and sustainable growth.

Free Cash Flow

- In finance, we care about the true timing of when cash leaves and comes into a firm
- Net Income is not a true measure of cash flow because it contains accounting adjustments
- We can extract the free cash flows from our financial statements by:

$$\begin{aligned}&\text{Free Cash Flow}\\&= \text{EBIT} - \text{Cash Taxes} + \text{Depreciation} - \Delta\text{WCR} - \text{NetCapEx}\end{aligned}$$

- $\text{Cash Taxes} = \text{EBIT} \times \text{Tax Rate}$
- $\text{NetCapEx} = \Delta\text{Fixed Assets} = \Delta\text{Net Fixed Assets} + \text{Depreciation}$