

# Accountings: Definitions and Formulas

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## 1 Accounting Basics

Basic Accounting Equation:  $\text{Assets} = \text{Liabilities} + \text{Equity}$   
Extended Accounting Equation:  $\text{Assets} = \text{Liabilities} + \text{Revenue} - \text{Expenses}$   
Gross Profit:  $\text{Gross Profit} = \text{Revenue} - \text{Cost of Goods Sold}$   
Operating Profit:  $\text{Op. Profit} = \text{Gross Profit} - \text{Op. Expenses}$   
Profit Before Tax:  $\text{PBT} = \text{Operating Profit} - \text{Tax Expense}$   
Net Profit:  $\text{Net Profit} = \text{PBT} - \text{Tax Expense}$

## 2 Accounting Measurements

### 2.1 Measurement Bases

Historical Cost: The value at which assets and liabilities are initially acquired or produced  
Amortized Cost: Initial cost less depreciation, amortization, or impairment  
Net Realizable Value (NRV): Estimated selling price less selling costs or allowances  
Present value of future payments (PVFP): The discounted value of future cash flows  
Fair value (FV): The price in an orderly transaction between market participants at the measurement date

## 2.2 Applications

Element	Measurement Base
<i>Assets:</i>	
Inventory	Lower: Historical cost or NRV
Receivables	NRV: Total receivables- allowance for bad debt
PPE	Cost model (Amortized Cost) or Revaluation model (FV- depreciation)
Investment property	Cost model or FV
Financial instruments	Historical cost, Amortized cost, or FV, depending on guidelines
<i>Liabilities:</i>	
Accounts Payable	Amortized cost
Borrowings	Amortized cost
Provisions	Present value of estimated future outflows
<i>Equity:</i>	
Common stocks	Issue price, less issuance costs
Retained earnings	Accumulated earnings, less dividends [historical]

## 3 Accounting Ratios

### 3.1 Liquidity

Current Ratio:	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$
Quick Ratio:	$\frac{\text{Cash} + \text{Marketable Securities} + \text{Receivables}}{\text{Current Liabilities}}$
Cash Ratio:	$\frac{\text{Cash} + \text{Marketable Securities}}{\text{Current Liabilities}}$
Collection Period:	$\frac{\text{Accounts Receivable}}{\text{Average Daily Sales}}$
Working Capital:	$\text{Current Assets} - \text{Current Liabilities}$

### 3.2 Solvency Ratios

Debt-to-Equity:	$\frac{\text{Total Debt}}{\text{Total Shareholder's Equity}}$
Debt-to-Assets:	$\frac{\text{Total Debt}}{\text{Total Assets}}$
Financial Leverage:	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$
Interest Coverage:	$\frac{\text{Earnings Before Interest and Taxes}}{\text{Interest Payments}}$

### 3.3 Profitability Ratios

Gross Profit Margin:	$\frac{\text{Gross Profit}}{\text{Revenue}}$
Operating Profit Margin:	$\frac{\text{Operating Income (EBIT)}}{\text{Revenue}}$
Net Profit Margin:	$\frac{\text{Net Income}}{\text{Revenue}}$
Return on Assets (RoA):	$\frac{\text{Net Income}}{\text{Average Total Assets}}$
Return on Equity (RoE):	$\frac{\text{Net Income}}{\text{Average Equity}}$
Basics EPS:	$\frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted Av. N}^{\circ} \text{ of Common Shares Outstanding}}$
Diluted EPS:	$\frac{\text{Net income} - \text{Pref. Div.} + \text{Convertible Pref. Div.} + \text{Convertible Debt Int. (1-t)}}{\text{Weighted Av. N}^{\circ} \text{ of common shares outstanding (including dilutive securities)}}$

### 3.4 Market Price Ratios

Price Earnings (P/E) Ratio:	$\frac{\text{Share Price}}{\text{Earnings per Share (EPS)}}$
Dividend Yield:	$\frac{\text{Dividend per Share}}{\text{Current Share Price}}$
Retention Rate (RR):	$\frac{\text{Net Income} - \text{Dividends Declared}}{\text{Net Income}}$
Dividend Payout:	$\frac{\text{Dividends Declared}}{\text{Net Income}}$

### 3.5 Cash Flow Ratios

$$\begin{aligned}\text{FCFF:} & \text{CFO} + [\text{Int} \times (1 - \text{Tax Rate})] - \text{FCInv} \\ \text{FCFE:} & \text{CFO} - \text{FCInv} + \text{Net Borrowing} \\ \text{Cash Flow-to-Revenue:} & \frac{\text{Cash Flow from Operations}}{\text{Revenue}} \\ \text{Cash Return-on-Assets:} & \frac{\text{Cash Flow from Operations}}{\text{Average Total Assets}} \\ \text{Cash Return-on-Equity:} & \frac{\text{Cash Flow from Operations}}{\text{Average Total Equity}}\end{aligned}$$

### 3.6 Activity Ratios

$$\begin{aligned}\text{Receivables Turnover:} & \frac{\text{Annual Sales}}{\text{Average Receivables}} \\ \text{Inventory Turnover:} & \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}} \\ \text{Payables Turnover:} & \frac{\text{Purchases}}{\text{Average Trade Payables}}\end{aligned}$$

### 3.7 Inventories Ratios

$$\begin{aligned}\text{Ending Inventory:} & \text{Beginning Inventory} + \text{Purchases} - \text{COGS} \\ \text{Cost of Goods Sold (COGS):} & \text{Beginning Inv.} + \text{Purchases} - \text{Ending Inv.} \\ \text{FIFO Inventory:} & \text{LIFO Inventory} + \text{LIFO Reserve}\end{aligned}$$

## 4 Further Definitions

### 4.1 Depreciation Methods

Straight-line Depreciation Expense:	$\frac{\text{Cost} - \text{Salvage Value}}{\text{Useful Life}}$
Ending PPE Net Book Value:	$\text{Original Cost} - \text{Accumulated Depreciation}$
Average Age:	$\frac{\text{Accumulated Depreciation}}{\text{Annual Depreciation Expense}}$
Total Useful Life:	$\frac{\text{Historical Cost}}{\text{Annual Depreciation Expense}}$
Remaining Useful Life:	$\frac{\text{Ending PPE Net Book Value}}{\text{Annual Depreciation Expense}}$