

Comparative Metrics & Conversion Cycles¹

Quick Sheet²

Cash Burn/Build and Liquidity Ratios

Cash Build = Revenues₁ – (Accounts Receivables₁ – Accounts Receivables₀)

Cash Burn = (Operating Expenses₁ - Dep/Am₁ + Interest Paid₁ + Taxes Paid₁) + (Inventory₁ – Inventory₀) – (Current Liabilities₁ – Current Liabilities₀) + (FA₁-FA₀+Dep&Am₁)

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

Cash Coverage Ratio (aka Times Interest Earned) = $\frac{\text{EBIT} + \text{Depreciation \& Amortization}}{\text{Interest Expense}} = \frac{\text{EBITDA}}{\text{Interest Expense}}$

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

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

Net Cash Burn = Cash Build – Cash Burn

Comparative Metrics and Ratios

b = Retention Ratio = $\frac{\text{NI} - \text{Dividends}}{\text{NI}}$; **1-b** = Payout Ratio = $\frac{\text{Dividends}}{\text{NI}}$

Capital Intensity = $\frac{\text{TA}}{\text{Sales}} = \frac{1}{\text{Total Asset Turns}}$

DE = Debt to Equity Ratio = $\frac{\text{Total Debt}}{\text{Total Equity}}$

Debt Ratio = $\frac{\text{Total Debt}}{\text{Total Assets}} = 1 - \frac{1}{\text{Equity Multiplier}}$

EM = Equity Multiplier = $\frac{\text{TA}}{\text{TE}} = 1 + \frac{\text{Total Debt}}{\text{Total Equity}}$

Equity Ratio = $\frac{\text{Total Equity}}{\text{Total Assets}}$

Equity Turns = $\frac{\text{Total Sales}}{\text{Total Equity}}$

g = growth rate of the subject cash flow variable

$$g = \frac{\text{Cash Flow Variable}_{\text{END}} - \text{Cash Flow Variable}_{\text{BEGINNING}}}{\text{Cash Flow Variable Year}_{\text{BEGINNING}}} \quad (100)$$

g = IR x ROIC - when **g** is calculated in this manner it is not likely to be the same as the **g** calculated above. This form of **g** is the level of growth the firm should be able to sustain given its current level of ROIC, investment rate, and capitalization.

¹ The Quick Sheet is intended to present an abbreviated presentation of the included concepts in corporate finance and is not intended to be a full or complete representation of the concepts, models, metrics or the underlying foundations from which they are built.

² This material set was provided by Richard Haskell, PhD, Associate Professor of Finance, Bill and Vieve Gore School of Business, Westminster College, Salt Lake City, Utah (2020), rhaskell@westminstercollege.edu.

$$\text{IGR} = \text{Internal Growth Rate} = \frac{ROA \times b}{1 - (ROA \times b)}$$

$$\text{LTE} = \text{Liabilities to Shareholder Equity} = \frac{\text{Total Liabilities}}{\text{Shareholder Equity}}$$

$$\text{PE Ratio} = \text{Price/Earnings Ratio} = \text{PPS/EPS}$$

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

$$\text{PPS} = \text{Price Per Share} = \text{Market Price Per Share}$$

$$\text{ROA} = \text{Return on Assets} = \frac{NI}{TA}$$

$$\text{ROE} = \text{Return on Equity} = \frac{NI}{TE}$$

$$\text{ROA}_{\text{DUPONT}} = \text{Dupont Identity} = \text{PM} \times \text{Equity Turns} \times \text{Equity Ratio} = \frac{NI}{\text{Sales}} \times \frac{\text{Sales}}{TE} \times \frac{TE}{TA}$$

$$\text{ROE}_{\text{DUPONT}} = \text{Dupont Identity} = \text{PM} \times \text{TAT} \times \text{EM} = \frac{NI}{\text{Sales}} \times \frac{\text{Sales}}{TA} \times \frac{TA}{TE}$$

$$\text{ROIC} = \text{Return on Invested Capital} = \frac{\text{NOPLAT}}{IC}$$

$$\text{SGR} = \text{Sustainable Growth Rate} = \frac{ROE \times b}{1 - (ROE \times b)}$$

$$\text{TIE} = \text{Times Interest Earned (aka Cash Coverage Ratio)} = \frac{\text{EBITDA}}{\text{Interest Expense}}$$

$$\text{Total Assets Turns} = \text{TAT} = \frac{\text{Sales}}{TA}$$

$$\text{Total Debt Ratio} = \frac{\text{Total Assets} - \text{Total Equity}}{\text{Total Assets}} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

PE Ratio is most commonly applied to common stock values and rarely applied to preferred stock shares

The term "Sales" in finance is often used to represent total income or total revenue

Conversion Cycles and Turnover Ratios (Rates)

These conversion cycles are represented on an annual basis (365 days per year), but could be easily adjusted to any accounting period

$$\text{Average Daily COGS} = \frac{\text{COGS}}{365}$$

$$\text{Average Inventory} = \frac{\text{INV}_{\text{beginning}} + \text{INV}_{\text{end}}}{2}$$

$$\text{CCC} = \text{Cash Conversion Cycle} = \text{DIO} + \text{DSO} - \text{DPO}$$

$$\text{Days' Costs in Payables} = \frac{365}{\text{Payables Turnover}}$$

$$\text{Days' Sales in Inventory} = \frac{365}{\text{Inventory Turnover}}$$

$$\text{Days' Sales in Receivables} = \frac{365}{\text{Receivables Turnover}}$$

$$\text{DIO} = \text{Days Inventory Outstanding} = \frac{\text{Average Inventory}}{\text{COGS}/365}$$

$$\text{DSO} = \text{Days Sales Outstanding} = \frac{(\text{AR}_{\text{beginning}} + \text{AR}_{\text{ending}})/2}{\text{Annual Revenue}/365}$$

$$\text{DPO} = \text{Days Payable Outstanding} = \frac{(\text{AP}_{\text{beginning}} + \text{AP}_{\text{ending}})/2}{\text{COGS}/365}$$

$$\text{Inventory Turnover} = \frac{\text{COGS}}{\text{Inventory}}$$

Same as Inventory to Sales Conversion Period

Same as Sales to Cash Conversion Period

Virtually same as Purchase to Payment Conversion Period

$$\text{ISCP} = \text{Inventory-to-Sales Conversion Period} = \frac{\text{Average Inventory}}{\text{Average Daily COGS}}$$

$$\text{Payables Turnover} = \frac{\text{COGS}}{\text{AP}}$$

$$\text{PPCP} = \text{Purchase-to-Pmt Conversion Period} = \frac{((\text{AP}_{\text{beginning}} + \text{Accrued Liabilities}_{\text{beginning}}) + (\text{AP}_{\text{end}} + \text{Accrued Liabilities}_{\text{end}}))/2}{\text{COGS}/365}$$

$$\text{Receivables Turnover} = \frac{\text{Sales}}{\text{Accounts Receivable}}$$

$$\text{SCCP} = \text{Sale-to-Cash Conversion Period} = \frac{\text{Average AR}}{\text{Net Sales}/365}$$

Market Value Ratios

$$\text{Price to Earnings (PE) Ratio} = \frac{\text{Common Equity Price Per Share}}{\text{Earnings Per Share}} = \frac{\text{Market Cap of Common Equity Shares}}{\text{Net Income} - \text{Dividends Paid to Preferred}}$$

$$\text{Price to Sales Ratio} = \frac{\text{Common Equity Price Per Share}}{\text{Sales Per Share Common Equity}}$$

$$\text{Market to Book Ratio} = \frac{\text{Market Value Per Equity Share}}{\text{Book Value Per Equity Share}}$$

$$\text{EBITDA Ratio} = \frac{\text{Enterprise Value}}{\text{EBITDA}}$$

PE Ratio is typically applied to a firm's common shares after required dividends are paid to preferred shareholders

Market to Book Ratio may be considered either Common or Preferred Shares separately or the two share types combined