## Formulas

## Financial Statement Analysis

Current Ratio $=$ Current Assets $/$ Current Liabilities
Quick Ratio $=($ Current Assets - Inventory $) /$ Current Liabilities
Cash Ratio $=$ Cash $/$ Current Liabilities
Debt Ratio $=$ Total Liabilities $/$ Total Assets
Debt-Equity Ratio $=$ Total Liabilities $/$ Total Equity
Equity Multiplier = Total Assets $/$ Total Equity
Times Interest Earned Ratio $=$ EBIT $/$ Interest
Cash Coverage $=($ EBIT + Depreciation \& Amort. $) /$ Interest
Inventory Turnover $=$ COGS $/$ Inventory
Days' Sales in Inventory = 365 Days / Inventory Turnover
Receivables Turnover $=$ Sales / Accounts Receivable
Days' Sales in Receivables $=365$ Days $/$ Receivables Turnover
Total Asset Turnover = Sales / Total Assets
Net Profit Margin = Net Income / Sales
EBITDA Margin = EBITDA $/$ Sales
Return on Assets $($ ROA $)=$ Net Income $/$ Total Assets
Return on Equity (ROE) = Net Income / Total Equity
Earnings per Share = Net Income / Shares Outstanding
Price / Earnings (PE) Ratio = Price per Share / Earnings per Share
Market-to-Book (M / B) Ratio $=$ Market Value per Share $/$ Book Value per Share
Market Capitalization = Price per Share x Shares Outstanding
Enterprise Value $=$ Market Cap. + Market Value of Interest-bearing Debt - Cash
Enterprise Value Multiple = EV / EBITDA
DuPont Identity: ROE = Profit Margin x Total Asset Turnover x Equity Multiplier

## Forecasting

External Financing Needed $=($ Assets/Sales $) \times \Delta$ Sales -
(Spontaneous Liabilities/Sales) x $\Delta$ Sales -
(Net Income/Sales) x Projected Sales x (1 - Dividends/Net Income)
Internal Growth Rate $=\frac{\operatorname{ROA} \times\left(1-\frac{\text { Dividends }}{\text { Net Income }}\right)}{1-\left[\operatorname{ROA} \times\left(1-\frac{\text { Dividends }}{\text { Net Income }}\right)\right]}$
Sustainable Growth Rate $=\frac{\operatorname{ROE} \times\left(1-\frac{\text { Dividends }}{\text { Net Income }}\right)}{1-\left[\operatorname{ROE} \times\left(1-\frac{\text { Dividends }}{\text { Net Income }}\right)\right]}$

## Present Value and Future Value of a Single Cash Flow

$$
\begin{array}{ll}
\mathrm{FV}_{\mathrm{t}}=\mathrm{PV} \\
0
\end{array} \times(1+\mathrm{r})^{\mathrm{t}} \quad P V_{0}=\frac{F V_{t}}{(1+r)^{t}}
$$ $F V=$ future value

## Present Value of Perpetuities

$$
\text { Perpetuity : } P V_{0}=\frac{C F_{1}}{r} \quad \text { Growing Perpetuity : } P V_{0}=\frac{C F_{1}}{r-g}
$$

## Present Value and Future Value of Ordinary Annuities

$$
\mathrm{PV}_{0}=\frac{C F_{1}}{r} \times\left[1-\frac{1}{(1+r)^{t}}\right] \quad \mathrm{FV}_{\mathrm{t}}=\frac{C F}{r} \times\left[(1+r)^{t}-1\right]
$$

## Effective Annual Rate

$E A R=\left[1+\left(\frac{A P R}{m}\right)\right]^{m}-1$

Where: $m=$ number of compounding periods per year.
APR = Annual Percentage Rate.

