Formulas For Common Ratios

Growth Rates

One-year Growth Rate	$\frac{X_t - X_{t-1}}{X_{t-1}}$
Compound Average Growth Rate (CAGR)[1]	$\left(\frac{X_t}{X_{t-n}}\right)^{\frac{1}{n}} - 1$

Profitability Ratios

Gross Margin	$\frac{\text{Gross Profit}}{\text{Sales}}$
Operating Margin	$\frac{\text{EBIT}}{\text{Sales}}$
Net Margin	$\frac{\text{Net Income}}{\text{Sales}}$
Return on Assets (ROA)[2]	$\frac{\text{EBIT(1-Tax Rate)}}{\text{Average Total Assets}}$
Return on Beginning Equity (ROBE)[3]	$\frac{\text{Net Income}}{\text{Beginning Equity}}$
Return on Invested Capital (ROIC)[4]	$\frac{\text{EBIT(1-Tax Rate)}}{\text{Interest-bearing Debt + Equity}}$
Pretax Return on Invested Capital	$\frac{\text{EBIT}}{\text{Interest-bearing Debt + Equity}}$

[1] n denotes the number of periods between observations X_t and X_{t-n}.

[2] Ratios that compare balance sheet and income accounts are often computed using the average of the balance sheet item. The average is computed by averaging beginning and year-end account balances.

[3] Some analysts use year-end or average equity when computing ROE.

[4] Interest-bearing debt is commonly defined as the sum of long-term debt, current portion long-term debt, and short-term debt. Analysts may use year-end or average invested capital.

Efficiency Ratios

Asset Turnover	$\frac{\text{Sales}}{\text{Average Total Assets}}$
Net Working Capital Turnover	$\frac{\text{Sales}}{\text{Average Net Working Capital}}$
Fixed Assets Turnover	$\frac{\text{Sales}}{\text{Net PP\&E}}$
Days in Inventory (Days)	$\frac{\text{Average Inventory}}{\text{COGS}/365}$
Inventory Turnover	$\frac{\text{COGS}}{\text{Average Inventory}}$
Collection Period (Days)	$\frac{\text{Average Receivables}}{\text{Sales}/365}$
Receivables Turnover	$\frac{\text{Sales}}{\text{Average Receivables}}$
Days' Sales in Cash (Days)	$\frac{\text{Cash + Securities}}{\text{Sales}/365}$
Payables Period (Days)[5]	$\frac{\text{Accounts Payable}}{\text{Credit Purchases}/365}$

Liquidity Ratios

Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$
Quick Ratio[6]	$\frac{\text{Cash + Marketable Securities + Receivables}}{\text{Current Liabilities}}$
Cash Ratio	$\frac{\text{Cash + Marketable Securities}}{\text{Current Liabilities}}$
Interval Measure[7]	$\frac{\text{Cash + Marketable Securities + Receivables}}{\text{Operating Costs}/365}$

[5]COGS is often used when credit purchase information is unavailable.
[6]This ratio sometimes uses "Current Assets - Inventory" in the numerator.
[7]Operating costs are defined as "COGS + SG&A - Depreciation."

Leverage Ratios

Debt Ratio	$\frac{\text{Interest-bearing Debt + Leases}}{\text{Interest-bearing Debt + Leases + Equity}}$
Debt to Equity Ratio[8]	$\frac{\text{Interest-bearing Debt}}{\text{Equity}}$
Equity to Asset Ratio	$\frac{\text{Equity}}{\text{Total Assets}}$
Times-interest Earned	$\frac{\text{EBIT}}{\text{Interest}}$
Times-interest Earned (Cash Flow)[9]	$\frac{\text{EBITDA}}{\text{Interest}}$
Times-burden Covered[10]	$\frac{\text{EBIT}}{\text{Interest} + \frac{\text{Principal Payments}}{\text{(1 - Tax Rate)}}}$

Risk Ratios

Fixed to Variable Costs[11]	$\frac{\text{SG\&A + Depreciation - Sales Commissions}}{\text{COGS - Depreciation}}$
Sales to Fixed Costs	$\frac{\text{Sales}}{\text{SG\&A + Depreciation - Sales Commissions}}$
Contribution Margin	$\frac{\text{Revenue - Variable Costs}}{\text{Sales}}$

[8] Some analysts use "Long-term Debt + Leases" as a measure of debt when computing debt to equity ratios. Equity may be measured on a book-value basis or a market-value basis

[9] EBITDA equals earnings before interest, taxes, depreciation, and amortization.

[10] Principal payments are defined as "Short-term Debt + Current Portion Long-term Debt."

[11] This is an approximation; more refined definitions may be used when detailed information on costs is available.