

Corporate Finance¹
Quick Sheet²

EBIT = Earnings before interest and taxes *EBIT is often referred to as operating income*

EBITDA = Earnings before interest, taxes, depreciation and amortization

CFFA₁ = **OCF** – **NCS** - **ΔNWC**

OCF = **EBIT + Depreciation & Amortization – Taxes**

NCS = **FA₁ – FA₀ + Depreciation & Amortization**

ΔNWC = **(CA₁-CL₁)-(CA₀-CL₀)**

CFFA₁ = **CFFA₂** = **CF_{CR}** + **CF_{SH}**

CF_{CR} = **Interest Paid – Net New Borrowing**

CF_{SH} = **Dividends Paid – Net New Equity**

NOPLAT = Net Operating Profits Less Adjusted Taxes = **EBIT * (1 – T)**

NI = **EBIT – Interest - Taxes**

RE = Retained Earnings = Net Income – Dividends Paid

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

TA = Total Assets = Current Assets + Fixed Assets (*the entirety of the left hand side of the balance sheet*)

TE = Total Equity = Book Value of All Outstanding Equity Shares + Retained Earnings

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

EM = Equity Multiplier = $\frac{\text{TA}}{\text{TE}}$

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

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

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

Equity Ratio = $\frac{\text{TE}}{\text{TA}}$

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

¹ The Valuation Multiples 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.

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

$$\mathbf{b} = \text{Retention Ratio} = \frac{\text{NI} - \text{Dividends}}{\text{NI}} = \frac{\text{EPS} - \text{DPS}}{\text{EPS}}$$

$$\mathbf{1-b} = \text{Payout Ratio} = \frac{\text{Dividends}}{\text{NI}} = \frac{\text{DPS}}{\text{EPS}}$$

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

$$\text{IGR} = \frac{\text{ROA} \times \mathbf{b}}{1 - (\text{ROA} \times \mathbf{b})}$$

$$\text{Net Inv} = \text{Net Investment} = \Delta \text{IC} = \text{IC}_1 - \text{IC}_0$$

$$= \Delta \text{FA} + \Delta \text{NWC}$$

$$= \text{NCS} + \Delta \text{NWC} - \text{Dep}$$

$$\text{NCS} = \text{Net Capital Spending} = \text{FA}_1 - \text{FA}_0 + \text{Dep}$$

$$\text{IR} = \text{Investment Rate} = \frac{\text{Net Investment}}{\text{NOPLAT}}$$

$$\text{IC} = \text{Invested Capital} = \text{Fixed Assets} + \text{Net Working Capital} \quad \text{Operations approach}$$

$$= \text{Total Equity} + \text{Total Long Term Debt} \quad \text{Financing approach}$$

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

g = growth rate of the subject cash flow variable

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

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.

WACC = Weighted Average Cost of Capital

$$= \left(\frac{E}{V} \times R_E\right) + \left(\frac{P}{V} \times R_P\right) + \left(\frac{D}{V} \times R_D\right)(1 - T_C)$$

$E + P + D = V$ Values of firm's capital structure. Depending on the perspective of the analysis you're conducting, this might be book value based or market value based.

Opportunity cost of Debt (R_D)

- 1) R_D = YTM or Current Yield for a similar type (maturity, risk, etc) of long term debt to that held by the subject firm
- 2) $R_D = \frac{\text{Interest}_t}{\text{Debt}_{t-1}}$ is a next best alternative if YTM is unavailable

Opportunity cost of Preferred (R_P)

- 1) R_P = YTM or Current Yield for a similar type preferred stock as that held by the firm (voting rights, callibility, convertibility, etc.) if available

- 2) $R_p = R_f + \beta(R_M - R_f)$ if data is available
- 3) $RP = \frac{\text{Preferred Dividends Paid}_t}{\text{Value of Preferred}_1}$ – this may reflect market value or book value depending on the perspective from which WACC is being calculated and the data available.

Opportunity cost of common equity

- 1) $R_E = R_f + \beta(R_M - R_f)$ This is the CAPM construction and is preferred if the data is available
- 2) $R_E = \frac{D_1}{R-g} + g$ – this is the Modigliani & Miller theorem for which r can be replaced by WACC, D_1 can be replaced by the income variable around which your analysis is built, and g is the expect long-run growth rate of the income variable

CAPM - Capital Asset Pricing Model

R_f = risk free market return; this value may be a current 2 or 10 year US Treasury rate

R_M = average market return for equity for industry in which the subject firm resides

β = risk adjustment for firm compared to the industry average for the firm such that $\beta = 1$ indicates firm risk/volatility level is equal to that of the average firm in the industry

FCF = Free Cash Flow

$$\mathbf{FCF} = \mathbf{NOPLAT} + \mathbf{Depreciation} - \mathbf{\Delta NWC} - \mathbf{NCS}$$

These two versions of FCF should result in the same value

$$\mathbf{FCF} = \mathbf{NOPLAT} - \mathbf{Net Investment}$$

$$\mathbf{FCF} = \frac{\mathbf{NOPLAT} \left(1 - \frac{g}{\mathbf{ROIC}}\right)}{\mathbf{WACC} - g}$$

Often yields a different value than those above.

$$\mathbf{Market Value Bonds} = C \frac{\left[1 - \frac{1}{(1+YTM)^N}\right]}{YTM} + \frac{F}{(1+YTM)^N}$$

$$C = \frac{F * \text{Coupon Rate}}{\text{Periods per year}}$$

$$F = \text{Face Value}$$

$$YTM = \frac{\text{Current Market Yield}}{\text{Periods per year}}$$

$$N = \text{Years to Maturity} \times \text{Periods Per Year} = \text{Periods to Maturity}$$

Accounting Acronyms, Terms and Ratios

Acronyms

ACP	Average Collection Period	NOAT	Net Operating Asset Turnover
AIDO	Average Inventory Days Outstanding	NOPAT	Net Operating Profit After Taxes
APDO	Accounts Payable Days Outstanding	NOPBT	Net Operating Profit Before Tax
APT	Accounts Payable Turnover	NOPM	Net Operating Profit Margin
ART	Accounts Receivable Turnover	NOWC	Net Operating Working Capital
AT	Asset Turnover	NOWCT	Net Operating Working Capital Turnover
COGS	Cost of Goods Sold	OEM	Operating Expense Margin
CSE	Common Shareholders' Equity	PM	Profit Margin
EPS	Earnings Per Share	PPE	Property, Plant & Equipment
FL	Financial Leverage (page 4-32)	PPET	Property, Plant & Equipment Turnover
FLEV	Financial Leverage (page 4-20)	RNOA	Return on Net Operating Assets
GPM	Gross Profit Margin	ROA	Return on Assets
INVT	Inventory Turnover	ROCE	Return on Common Equity
LTOAT	Long Term Operating Asset Turnover	ROE	Return on Equity
MI	Minority Shareholders (Minority Interest)	SG&A	Selling, General & Administrative Expenses
NNE	Net Non-Operating expense		
NNE	Net non-operating expense		
NNEP	Net non-operating expense % spread		
NNO	Net non-operating Obligations		
NOA	Net Operating Assets		

Ratios

Current Ratio	$\text{Current Assets/Current Liabilities}$
Quick Ratio	$\text{Quick Assets/Current Liabilities}$
Liabilities to Equity	$\text{Total Liabilities/Stockholders' Equity}$
Times Interest Earned	$\text{Earnings Before interest \& taxes/Interest expense}$