

# Nike Cost of Capital (WACC) Student Practice

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*SEE READING:*

*NIKE, INC. COST OF CAPITAL*

# Concepts and Formulas to Review Prior to Case

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Cost of Capital = Weighted Average Cost of Capital

$$\text{WACC} = D/V r_D (1-T) + E/V r_E \quad r_E = r_f + B_E (R_m - r_f)$$

- $D$  = market value of debt
- $E$  = market value of equity
- $V$  = total market value of debt and equity =  $D + E$
- $D/V$  = proportion of debt
- $r_D (1-T)$  = after-tax cost of debt
- $E/V$  = proportion of equity
- $r_E$  = cost of equity

# Example of Cost of Debt: IBM

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Suppose three years ago, IBM issued a 10-year bond with a face value of \$1,000. The bond carries a coupon of 6% paid *semiannually*. An investor would be able to purchase the bond today at a market price of \$960. The company's tax rate is 35%. Use your financial calculator to estimate IBM's cost of debt (an investor's yield) on this bond. What is IBM's cost of debt (ignoring tax savings) and after-tax cost of debt on this bond if the company's tax rate is 35%?

$$N = \_\_\_ * 2 = \_\_\_, PV = -\_\_\_, PMT = \_\_\_ * \_\_\_ / 2 = \_\_\_, FV = 1000;$$

$$IRR = r_D \text{ cost of debt} = \_\_\_ * 2 = \_\_\_ \%$$

$$r_D (1-T) = \text{after-tax cost of debt} = \_\_\_ \% * (1 - \_\_\_) = \_\_\_ \%$$

# OR Similarly a faster, more reliable technique for IBM

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Suppose IBM's average debt maturity is 7 years and that IBM's debt credit rating is AA. The company's tax rate is 35%. An analyst looks up the Risk-free rate for 7-year Treasuries and finds the risk-free yield or cost is 4%. The analyst looks up what the average credit risk premium is for companies rated AA with 7-year corporate debt and finds the premium is 2.73%.

What is IBM's cost of debt (ignoring tax savings) and after-tax cost of debt on this bond if the company's tax rate is 35%?

$$r_D (1-T) = (r_{RF} + \text{Credit Risk Premium}) * (1-T)$$

Step 1:  $r_{RF} + \text{Credit Risk Premium} = \underline{\quad} + \underline{\quad} = \underline{\quad}\%$

Step 2: Apply tax rate =  $\underline{\quad} * (1-.35) = \underline{\quad}\%$

# Cost of Equity = CAPM

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The higher is beta, the higher is the expected return or cost of equity

- $B_E$  = beta equity (beta of the stock market is 1)
- $r_f$  = risk-free rate or Treasury  
(use the 10 to 30 year Treasury rate)
- $R_M$  = expected return on the stock market  
(standard is the S&P500)
- $(R_M - r_f)$  = expected excess return on the market  
(5.5% to 7.5% most often used)

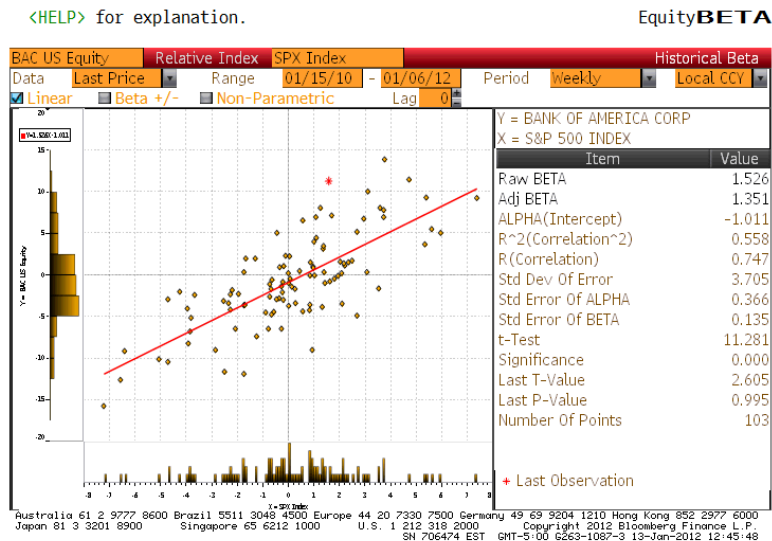
**Cost of equity (CAPM) =  $r_f + B_E (R_m - r_f)$**

**Adjusted beta = (raw beta\*.67) + (1\*.33)**

# Example of Equity Risk Estimators for 2 Different Analysts BAC

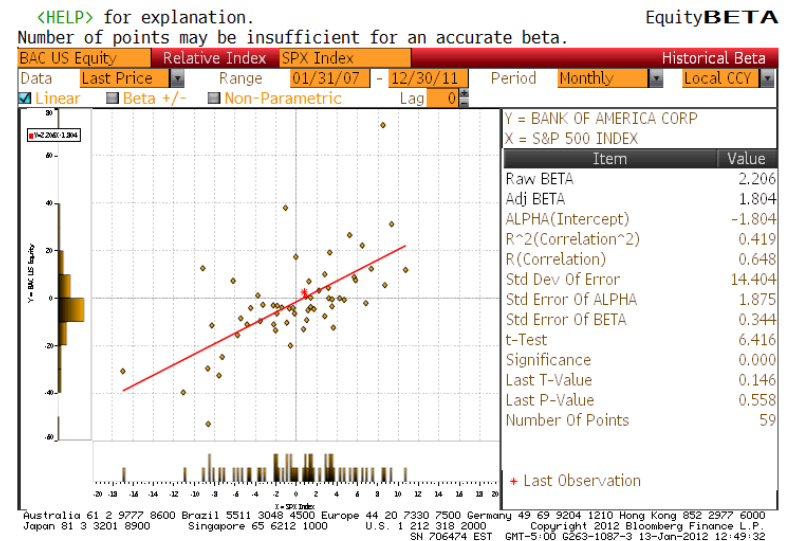
BAC, 12/11 2 YEAR WEEKLY

ANALYST 1 USES 1.351



BAC, 12/11 5 YEAR MONTHLY

ANALYST 2 USES 2.206



# Two Analysts you do the work for BAC

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Remember Analyst 1 chooses 2-year Adjusted beta

Remember Analyst 2 chooses 5-year Raw beta (regular equity beta)

The two analysts agree on the risk-free of 2% and the expected market premium of 6%

$$\text{Analyst 1 CAPM} = r_f + B_E (R_m - r_f) = \underline{\hspace{2cm}} + (1.351 * \underline{\hspace{2cm}}) = \underline{\hspace{2cm}}$$

$$\text{Analyst 2 CAPM} = r_f + B_E (R_m - r_f) \underline{\hspace{2cm}} + (2.206 * \underline{\hspace{2cm}}) = \underline{\hspace{2cm}}$$

Analysis: Compare the cost of equity estimates by the two different financial analysts.

# Example of Cost of Capital or WACC for WMT

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- Current Treasury Rates & Risk Premiums & Estimated Market Risk premium
  - 5 year – 3.86%, **10-year = 4.27%**, 20-year = 4.72%
  - AAA = 1.05%, **AA = 1.24%**, A = 1.43%, BBB=1.62%
  - $(R_M - r_f)$  = expected excess return on the stock market = **7%**.

Suppose Walmart's average maturity of debt is about 10 years, the company's debt is rated AA, and the company's tax rate is 34.7%. Also, Walmart's beta is .80. (You may use this beta rather than adjust it.) Wal-Mart's capital structure is 87.59% equity and 12.41% debt. What is Walmart's WACC or cost of capital?

- 1. cost of debt =  $(r_f + \text{Credit Risk Premium}) * (1-T) = \underline{\hspace{2cm}}$
- 2. cost of equity =  $r_f + B_E (R_m - r_f) = \underline{\hspace{2cm}}$
- 3. Weight by .1241 and **.8759**: =



# NIKE WACC Debt and Equity Weights

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Ford returns from her meeting and looks over the assistant Cohen's work. Out comes the red pen and instructions to re-work the WACC. The analyst incorrectly had D/V and E/V as 30% and 70%. You correct it.

- $D = 1,295.7$
- NIKE stock price = 42.09, and current shares = 271.5
- $E = \underline{\hspace{2cm}}$
- $V = D + E = \underline{\hspace{2cm}}$
- $D/V = \underline{\hspace{2cm}}$
- $E/V = \underline{\hspace{2cm}}$

# Cost of Debt at NIKE

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The analyst incorrectly had the cost of debt for NIKE at 4.2%. You correct it.

$$FV = 1000$$

$$PV = -956$$

$$N = 20 * 2 = 40 \text{ (bond matures in 20 years)}$$

$$PMT = 1000 * .0675 / 2 = 33.75$$

$$I/YR = \underline{\hspace{2cm}} * 2 = \underline{\hspace{2cm}}$$

# Cost of Equity from CAPM

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Intermediate Treasury = risk-free rate = 5.74%

Geometric market risk premium, 1926-1999 = 5.9%

Implies expected return on the market =  $5.74 + 5.9 = 11.64$

$$r_E = r_f + \text{beta} (r_M - r_f)$$

$$r_E = 5.74 + [.8 * (11.64 - 5.74)]$$

$$r_E = 5.74 + (.8 * 5.9)$$

$$\text{SO} = r_E = \underline{\hspace{2cm}}$$

# Calculate the Corrected WACC for NIKE

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The analyst incorrectly determined WACC = 8.36%. You correct it.

$$WACC = D/V r_D (1-T) + E/V r_E$$

$$WACC = .1018 * 7.17\% * (1-.38) + .8982 * 10.46\%$$

$$WACC = \underline{\hspace{2cm}}\%$$

What does this WACC imply about NKE stock price?

The stock value, according to Ford's model is about \$53

$$[(53 - 42.09)/42.09] * 100 = \underline{\hspace{2cm}}\%$$

Yes, Ford will add NIKE to her value fund

She concludes NIKE is a good buy

Ford estimates the correct NIKE Value is \$53 (not \$70)