Cost of Debt & Equity

Weighted Average Cost of Capital

Dr. Charles W. Evans

Cost of Debt & Equity

Weighted Average Cost of Capital

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0}$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0} = \frac{P_1}{P_0} - \frac{P_0}{P_0}$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0} = \frac{P_1}{P_0} - 1$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0} = \frac{P_1}{P_0} - 1$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0} = \frac{P_1}{P_0} - 1$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0} = \frac{P_1}{P_0} - 1$$
- Average Returns

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0} = \frac{P_1}{P_0} - 1$$

- Average Returns
  - Arithmetic Mean

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0} = \frac{P_1}{P_0} - 1$$
- Average Returns
  - ~~Arithmetic Mean~~

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0} = \frac{P_1}{P_0} - 1$$
- Average Returns
  - ~~Arithmetic Mean~~
  - Geometric Mean

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0} = \frac{P_1}{P_0} - 1$$

- Average Returns
  - ~~Arithmetic Mean~~
  - Geometric Mean

$$geometric\ mean = \sqrt[t]{(1+r_1)*(1+r_2)*(1+r_3)*...*(1+r_t)} - 1$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Changes in Price convey information
  - Returns $$r = \frac{P_1 - P_0}{P_0} = \frac{P_1}{P_0} - 1$$

- Average Returns
  - ~~Arithmetic Mean~~
  - Geometric Mean

$$geometric\ mean = \sqrt[t]{(1+r_1)*(1+r_2)*(1+r_3)*...*(1+r_t)} - 1$$

$$geometric\ mean = \left((1+r_1)*(1+r_2)*(1+r_3)*...*(1+r_t)\right)^{(1/t)} - 1$$

Cost of Debt & Equity

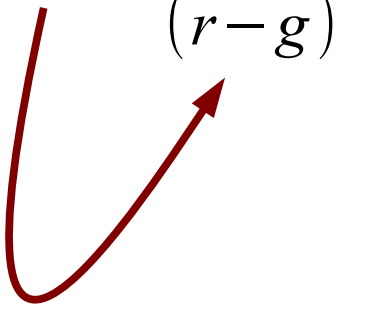
Weighted Average Cost of Capital

$$P = \frac{D_0(1+g)}{(r-g)}$$

Cost of Debt & Equity

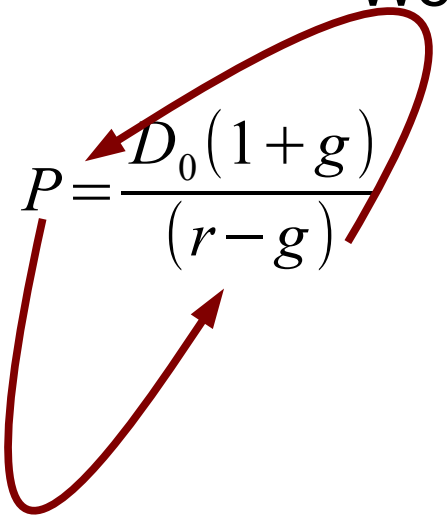
Weighted Average Cost of Capital

$$P = \frac{D_0(1+g)}{(r-g)}$$



Cost of Debt & Equity

Weighted Average Cost of Capital



Cost of Debt & Equity

Weighted Average Cost of Capital

$$(r-g)=\frac{D_0(1+g)}{P}$$

Cost of Debt & Equity

Weighted Average Cost of Capital

$$r = \frac{D_0(1+g)}{P} + g$$

Cost of Debt & Equity

Weighted Average Cost of Capital

$$r_e = \frac{D_0(1+g)}{P} + g$$

Cost of Debt & Equity

Weighted Average Cost of Capital

$$r_e = \frac{D_0(1+g)}{P} + g$$

Cost of Debt & Equity

Weighted Average Cost of Capital

$$r_e = \frac{D_0(1+g)}{P} + g$$

Cost of Debt & Equity

Weighted Average Cost of Capital

$$r_e = \frac{D_0(1+g)}{P} + g$$

$$\mathrm{NI}_0 = D_0 + Ret.\ Earnings_0$$

Cost of Debt & Equity

Weighted Average Cost of Capital

$$r_e = \frac{D_0(1+g)}{P} + g$$

$$\mathrm{NI}_0 = D_0 + Ret.\ Earnings_0$$

$$D_0 = 0 \Rightarrow \frac{\mathrm{NI/share}}{P} = \frac{1}{\mathrm{PE\ ratio}}$$

Cost of Debt & Equity

Weighted Average Cost of Capital

$$r_e = \frac{D_0(1+g)}{P} + g$$

$$\text{NI}_0 = D_0 + Ret.\ Earnings_0$$

$$D_0 = 0 \Rightarrow \frac{\text{NI/share}}{P} = \frac{1}{\text{PE ratio}}$$

Cost of Debt & Equity

Weighted Average Cost of Capital

$$r_e = \frac{D_0(1+g)}{P} + g$$

$$\text{NI}_0 = D_0 + Ret.\ Earnings_0$$

$$D_0 = 0 \Rightarrow \frac{\text{NI/share}}{P} = \frac{1}{\text{PE ratio}}$$

$$r_e = \frac{(1+g)}{PE\ ratio} + g$$

Cost of Debt & Equity

Weighted Average Cost of Capital

$$r_e = \frac{D_0(1+g)}{P} + g$$

$$\text{NI}_0 = D_0 + Ret.\ Earnings_0$$

$$D_0 = 0 \Rightarrow \frac{\text{NI/share}}{P} = \frac{1}{\text{PE ratio}}$$

$$r_e = \frac{(1+g)}{PE\ ratio} + g$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- 'Dividend Discounting'

$$r_e = \frac{(1+g)}{PE\ ratio} + g \qquad r_e = \frac{D_0(1+g)}{P} + g$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- 'Dividend Discounting'

$$r_e = \frac{(1+g)}{PE\ ratio} + g \qquad r_e = \frac{D_0(1+g)}{P} + g$$

- Capital Asset Pricing Model (CAPM)

Cost of Debt & Equity

Weighted Average Cost of Capital

- 'Dividend Discounting'

$$r_e = \frac{(1+g)}{PE\ ratio} + g \qquad r_e = \frac{D_0(1+g)}{P} + g$$

- Capital Asset Pricing Model (CAPM)

$$r_e = r_f + \beta(r_m - r_f)$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- 'Dividend Discounting'

$$r_e = \frac{(1+g)}{PE\ ratio} + g \qquad r_e = \frac{D_0(1+g)}{P} + g$$

- Capital Asset Pricing Model (CAPM)

$$r_e = r_f + \beta(r_m - r_f)$$

  - $r_f \rightarrow$ T-Bill rate / LIBOR

Cost of Debt & Equity

Weighted Average Cost of Capital

- 'Dividend Discounting'

$$r_e = \frac{(1+g)}{PE\ ratio} + g \qquad r_e = \frac{D_0(1+g)}{P} + g$$

- Capital Asset Pricing Model (CAPM)

$$r_e = r_f + \beta(r_m - r_f)$$

  - $r_f \rightarrow$ T-Bill rate / LIBOR
  - $r_m \rightarrow$ S&P 500 returns

Cost of Debt & Equity

Weighted Average Cost of Capital

- 'Dividend Discounting'

$$r_e = \frac{(1+g)}{PE\ ratio} + g \qquad r_e = \frac{D_0(1+g)}{P} + g$$

- Capital Asset Pricing Model (CAPM)

$$r_e = r_f + \beta(r_m - r_f)$$

β > 1 : more volatile than market

  - $r_f \rightarrow$ T-Bill rate / LIBOR
  - $r_m \rightarrow$ S&P 500 returns

Cost of Debt & Equity

Weighted Average Cost of Capital

- 'Dividend Discounting'

$$r_e = \frac{(1+g)}{PE\ ratio} + g \qquad r_e = \frac{D_0(1+g)}{P} + g$$

- Capital Asset Pricing Model (CAPM)

$$r_e = r_f + \beta(r_m - r_f)$$

  - $r_f \rightarrow$ T-Bill rate / LIBOR
  - $r_m \rightarrow$ S&P 500 returns

β > 1 : more volatile than market

β = 1 : as volatile as market

Cost of Debt & Equity
Weighted Average Cost of Capital

- 'Dividend Discounting'

$$r_e = \frac{(1+g)}{PE\ ratio} + g \qquad r_e = \frac{D_0(1+g)}{P} + g$$

- Capital Asset Pricing Model (CAPM)

$$r_e = r_f + \beta(r_m - r_f)$$

  - $r_f \rightarrow$ T-Bill rate / LIBOR
  - $r_m \rightarrow$ S&P 500 returns

β > 1 : more volatile than market

β = 1 : as volatile as market

0< β < 1 : less volatile than market

Cost of Debt & Equity
Weighted Average Cost of Capital

- 'Dividend Discounting'

$$r_e = \frac{(1+g)}{PE\ ratio} + g \qquad r_e = \frac{D_0(1+g)}{P} + g$$

- Capital Asset Pricing Model (CAPM)

$$r_e = r_f + \beta(r_m - r_f)$$

  - $r_f \rightarrow$ T-Bill rate / LIBOR
  - $r_m \rightarrow$ S&P 500 returns

β > 1 : more volatile than market

β = 1 : as volatile as market

0< β < 1 : less volatile than market

β = 0 : uncorrelated with market

Cost of Debt & Equity

Weighted Average Cost of Capital

- 'Dividend Discounting'

$$r_e = \frac{(1+g)}{PE\ ratio} + g \qquad r_e = \frac{D_0(1+g)}{P} + g$$

- Capital Asset Pricing Model (CAPM)

$$r_e = r_f + \beta(r_m - r_f)$$

  - $r_f \rightarrow$ T-Bill rate / LIBOR
  - $r_m \rightarrow$ S&P 500 returns

β > 1 : more volatile than market

β = 1 : as volatile as market

0< β < 1 : less volatile than market

β = 0 : uncorrelated with market

β < 0 : inversely correlated with market

Cost of Debt & Equity

Weighted Average Cost of Capital

- Cost of Debt

Cost of Debt & Equity

Weighted Average Cost of Capital

- Cost of Debt
  - Return on Debt to Creditor = Cost of Debt to Firm

Cost of Debt & Equity
Weighted Average Cost of Capital

- Cost of Debt
  - Return on Debt to Creditor = Cost of Debt to Firm
  - Average rate paid on Debt

Cost of Debt & Equity

Weighted Average Cost of Capital

- Cost of Capital

Cost of Debt & Equity

Weighted Average Cost of Capital

- Cost of Capital
  - Weighted Average of Cost of Equity and Debt

Cost of Debt & Equity

Weighted Average Cost of Capital

- Cost of Capital
  - Weighted Average of Cost of Equity and Debt
  - Weighted Average of Cost of Capital (WACC)

Cost of Debt & Equity
Weighted Average Cost of Capital

- Cost of Capital
  - Weighted Average of Cost of Equity and Debt
  - Weighted Average of Cost of Capital (WACC)

$$WACC = \frac{D}{A} r_d + \frac{E}{A} r_e$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Cost of Capital
  - Weighted Average of Cost of Equity and Debt
  - Weighted Average of Cost of Capital (WACC)

$$WACC = \frac{D}{A} r_d + \frac{E}{A} r_e$$

$$\frac{D}{A} + \frac{E}{A}$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Cost of Capital
  - Weighted Average of Cost of Equity and Debt
  - Weighted Average of Cost of Capital (WACC)

$$WACC = \frac{D}{A} r_d + \frac{E}{A} r_e$$

$$\frac{D}{A} + \frac{E}{A} = \frac{D+E}{A}$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Cost of Capital
  - Weighted Average of Cost of Equity and Debt
  - Weighted Average of Cost of Capital (WACC)

$$WACC = \frac{D}{A} r_d + \frac{E}{A} r_e$$

$$\frac{D}{A} + \frac{E}{A} = \frac{D+E}{A} = \frac{A}{A}$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Cost of Capital
  - Weighted Average of Cost of Equity and Debt
  - Weighted Average of Cost of Capital (WACC)

$$WACC = \frac{D}{A} r_d + \frac{E}{A} r_e$$

$$\frac{D}{A} + \frac{E}{A} = \frac{D+E}{A} = \frac{A}{A} = 1$$

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = \frac{D}{A} r_d + \frac{E}{A} r_e$$

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = \frac{D}{A} r_d + \frac{E}{A} r_e$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = \frac{D}{A} r_d + \frac{E}{A} r_e$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 0.2821 r_d + \frac{E}{A} r_e$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = 0.2821\mathrm{r}_d + 0.7179\mathrm{r}_e$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 0.2821 r_d + 0.7179 r_e$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = 0.2821 * 13.10\% + 0.7179 r_e$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = \frac{(1+g)}{PE\ ratio} + g$$

$$r_e = \frac{D_0(1+g)}{P} + g$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = \frac{(1+g)}{PE\ ratio} + g$$

$$r_e = \frac{D_0(1+g)}{P} + g$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

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Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = \frac{(1+g)}{PE\ ratio} + g$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = \frac{(1+g)}{PE\ ratio} + g$$

$$r_e = r_f + \beta (r_m - r_f)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = \frac{(1+g)}{PE\ ratio} + g$$

$$r_e = r_f + \beta (r_m - r_f)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = \frac{1.039}{PE\ ratio} + 0.039$$

$$r_e = r_f + \beta (r_m - r_f)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = \frac{1.039}{PE\ ratio} + 0.039$$

$$r_e = r_f + \beta(r_m - r_f)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = \frac{1.039}{5.46} + 0.039$$

$$r_e = r_f + \beta (r_m - r_f)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 0.1903 + 0.039$$

$$r_e = r_f + \beta (r_m - r_f)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$r_e = r_f + \beta (r_m - r_f)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$r_e = r_f + \beta (r_m - r_f)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$r_e = 0.4\% + \beta(r_m - 0.4\%)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$r_e = 0.4\% + \beta(r_m - 0.4\%)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$r_e = 0.4\% + \beta(8.4\% - 0.4\%)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$r_e = 0.4\% + \beta(8.4\% - 0.4\%)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$r_e = 0.4\% + 2.3(8.4\% - 0.4\%)$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$r_e = 0.4\% + 2.3 * 8.0\%$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$r_e = 0.4\% + 18.4\%$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$r_e = 18.80\%$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 18.80\%$$

$$WACC = 3.6955\% + 0.7179 r_e$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 18.80\%$$

$$WACC = 3.6955\% + 0.7179 r_e$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$WACC = 3.6955\% + 0.7179 * 22.93\%$$

$$r_e = 18.80\%$$

$$WACC = 3.6955\% + 0.7179 * 18.80\%$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$WACC = 3.6955\% + 16.4609\%$$

$$r_e = 18.80\%$$

$$WACC = 3.6955\% + 13.4965\%$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

$$WACC = 3.6955\% + 0.7179 r_e$$

$$r_e = 22.93\%$$

$$WACC = 20.16\%$$

$$r_e = 18.80\%$$

$$WACC = 17.19\%$$

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity
Weighted Average Cost of Capital

- Example

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Total Debt/Asset Ratio: 28.21%

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Debt/Equity Ratio: 0.40

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

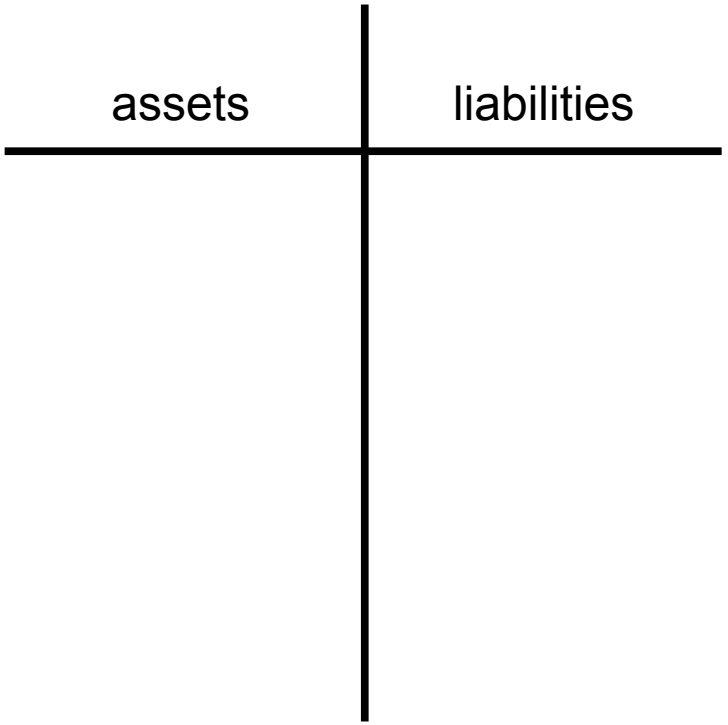
P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example



T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Debt/Equity Ratio: 0.40

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

assets	liabilities
assets	debt
	equity

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Debt/Equity Ratio: 0.40

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

assets	liabilities	
assets	debt	0.40
	equity	1.00

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Debt/Equity Ratio: 0.40

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

assets	liabilities	
assets	debt	0.40
	equity	1.00
1.40		1.40

T-Bill rate: 0.4%

Expected market return: 8.4%

Dividend: 0

Debt/Equity Ratio: 0.40

Beta: 2.3

Est. Earnings Growth Rate: 3.9%

P/E Ratio: 5.46

Weighted-Average Interest Paid: 13.10%

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

D/A = 0.40/1.40

E/A = 1.00/1/40

assets	liabilities	
assets	debt	0.40
	equity	1.00
1.40		1.40

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

D/A = 0.40/1.40 = 0.2857

E/A = 1.00/1/40 = 0.7142

assets	liabilities	
assets	debt	0.40
	equity	1.00
1.40		1.40

Cost of Debt & Equity

Weighted Average Cost of Capital

- Example

D/A = 0.40/1.40 = 0.2857

E/A = 1.00/1/40 = 0.7142

assets	liabilities	
assets	debt	0.40
	equity	1.00
1.40		1.40

Cost of Debt & Equity

Weighted Average Cost of Capital

- Capital Markets

Cost of Debt & Equity

Weighted Average Cost of Capital

- Capital Markets
  - Initial Public Offering

Cost of Debt & Equity
Weighted Average Cost of Capital

- Capital Markets
  - Initial Public Offering
    - Underpricing

Cost of Debt & Equity
Weighted Average Cost of Capital

- Capital Markets
  - Initial Public Offering
    - Underpricing
  - NYSE, NASDAQ, LSE, TSX, Hong Kong

Cost of Debt & Equity
Weighted Average Cost of Capital

- Capital Markets
  - Initial Public Offering
    - Underpricing
  - NYSE, NASDAQ, LSE, TSX, Hong Kong
    - Rising stars:Jo'burg, Moscow, Mumbai, São Paolo

Cost of Debt & Equity
Weighted Average Cost of Capital

- Capital Markets
  - Initial Public Offering
    - Underpricing
  - NYSE, NASDAQ, LSE, TSX, Hong Kong
    - Rising stars:Jo'burg, Moscow, Mumbai, São Paolo
  - Diversification

Cost of Debt & Equity
Weighted Average Cost of Capital

- Capital Markets
  - Initial Public Offering
    - Underpricing
  - NYSE, NASDAQ, LSE, TSX, Hong Kong
    - Rising stars:Jo'burg, Moscow, Mumbai, São Paolo
  - Diversification
    - Systemic Risk

Cost of Debt & Equity
Weighted Average Cost of Capital

- Capital Markets
  - Initial Public Offering
    - Underpricing
  - NYSE, NASDAQ, LSE, TSX, Hong Kong
    - Rising stars:Jo'burg, Moscow, Mumbai, São Paolo
  - Diversification
    - Systemic Risk
    - Unsystematic – aka,Idiosyncratic – Risk

Cost of Debt & Equity
Weighted Average Cost of Capital

- Capital Markets
  - Initial Public Offering
    - Underpricing
  - NYSE, NASDAQ, LSE, TSX, Hong Kong
    - Rising stars:Jo'burg, Moscow, Mumbai, São Paolo
  - Diversification
    - Systemic Risk
    - Unsystematic – aka,Idiosyncratic – Risk
  - The Future Is Unknowable

Cost of Debt & Equity

Weighted Average Cost of Capital

Dr. Charles W. Evans