

Managing finance 2

Finance



Managing Finance Explain with examples how the cost of capital is determined. Cost of capital is the minimum acceptable rate on funds committed into particular investment project (Pratt & Grabowski, 2010). The acceptable rate is also referred to as the required rate of return, which is actually a composition of time and risk on the use of capital for investment (Brigham & Ehrhardt, 2011).

The cost of capital may be determined by taking into account its components (Brigham & Ehrhardt, 2011). Some of the components that may help to determine the cost of capital include;

1. Cost of Debt.

The cost of debt may be determined using the formula, $K_d = I (1-T) \div B_o$,
Whereby B_o = market value/issuing price

K_d = Cost of debt

I = Interest

T = Tax

Example 1

Company issued 7 years, 15% bond of 100 each at par value. If the company realize the whole amount on sell but will pay \$100, principal to the bond holders on maturity. Determine the cost of debt?

$$K_d = I (1-T) \div B_o$$

$$= 15(1-0.4) \div 100 = 0.09$$

$$= 9\%$$

2. Cost of equity.

May be calculated using the formula $K_e = \frac{D_1}{P_0 (1-f)} + g$

$P_0 (1-f)$

Whereby, K_e = cost of equity

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D_1 = expected dividend

P_0 = Market price

F = floatation

g = constant growth rate

Example 2

The share of a company is currently selling at \$100. The company wants to finance its capital expenditure of \$100,000 either by selling new shares or through retained earnings. If the company sells new shares the issue price will be \$95. The dividend per share next year will be \$4.75 and it is expected to grow at 6%.

Therefore, based on the above example, cost of external capital will be calculated as follows.

$$K_e = \frac{D_1}{P_0(1-f)} + g$$

$$K_e = \frac{4.75 + (6\%)(95)}{95(1-0)}$$

$$K_e = 11\%$$

$$(95(1-0))$$

3. The weighted average cost of capital (WACC) is used to calculate the cost of capital (Groppelli & Nikbakht, 2006). In this model all the components of cost of capital are taken into consideration, the formula for WACC is.

$$WACC = K_d \left(\frac{D}{V}\right) + K_P \left(\frac{D}{V}\right) + K_e \left(\frac{E}{V}\right)$$

Example 3

Below is the capital structure of ABC Company. The capital structure is considered to be optimal

i). 10% irredeemable preference shares per value is 100. \$ 10500

ii). 10% redeemable preference shares per value 100 \$2900

iii). 12% term loan of \$37700

Total value (v) \$ 1, 51200

Additional information

- i). The company share price is currently selling at \$ 3. 6 with a dividend of 3. 6 per share which is anticipated to grow at 8% indefinitely.
- ii). Redeemable preference shares were issued on 1st January 1999, with a 12 years maturity period. A similar issue today will be at \$93.
- iii). The market price of 10% irredeemable shares is \$82
- iv). The company has raised a term loan from the bank in 1995. A similar loan today will cost 14% and a tax rate of 50%.

Therefore, weighted average cost of capital may be calculated by first determining the cost of capital for each element (Groppelli & Nikbakht, 2006).

Cost of debt $K_d = I (1-T) \div B_0$

$$= 14 \% (1-0. 5) = 7\%$$

Cost of redeemable preference shares $K_P = \frac{Int + 1 \div n (F-B_0)}{(F+B_0) 0. 5}$

$$(F+B_0) 0. 5$$

Whereby $int = 10 \times 100 = 10$

100

$n = 12$ years

$F = 100$

$B_0 = 93$

$K_P = \frac{Int + 1 \div n (F-B_0)}{(F+B_0) 0. 5} = \frac{10 + 1 \div 12 (100-93)}{(100+93)0. 5} = 10. 96\%$

$$(F+B_0) 0. 5 (100+93)0. 5$$

Cost of equity $K_e = \frac{D_1}{P_0 (1-f)} + g = \frac{10}{82} + 0. 08 = 12. 2\%$

$P_0 (1-f) 82$

Therefore, the weighted average cost of capital $WACC = K_d (D/V) + K_P (D/V) + K_e (E/V)$

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+ Ke (E/V)

$$= 7\% (37700 \div 151200) + 10.96\% (2900 \div 151200) + 12.2\%$$

$$(5600 \div 151200)$$

$$= 1.7454 + 0.2102 + 0.4519 = 2.4075\%$$

Calculate the differences in cost and risk.

The difference in cost of equity financing and debt financing may be calculated in this case using example 3. Whereby, cost of equity is 12.2% and that of debt is 7%

$$\text{The difference is} = 12.2\% - 7\%$$

$$= 5.2\%. \text{ This indicates that it is 5.2\% expensive to use equity finance.}$$

Cost of capital may be computed using CAPM = Risk free rate + (market premium) beta

Example 5

$$\text{If risk free rate} = 4\%$$

$$\text{Beta} = 1.66$$

$$\text{Market premium} = 10\% \text{ (as in example 3)}$$

$$\text{CAPM} = \text{Risk free rate} + (\text{equity market premium}) \text{ beta}$$

$$= 4\% + (10\%) 1.66$$

$$= 20.6\%$$

The difference in risk between equity and debt financing = $20.6\% - 12.2\% = 8.4\%$

References

Brigham, E. F., & Ehrhardt, M. C. (2011). Financial management: Theory and practice. Mason, OH: South-Western Cengage Learning.

Groppelli, A. A., & Nikbakht, E. (2006). Finance. Hauppauge, N. Y: Barrons.

Pratt, S. P., & Grabowski, R. J. (2010). Cost of capital: Applications and examples. Hoboken, N. J: John Wiley & Sons.