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ACCA F9

Financial Management (FM)

财务管理

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Capital Structure

1 Capital structure theory

2 Impact of cost of capital on investment

The capital structure theory主要解决企业该如何融资能够使企业的 cost of capital 最小化

- Traditional view

- MM theory

The traditional view concludes that there is an optimal capital mix of equity and debt at which the weighted average cost of capital is minimized.

MM theory states that the firm's overall weighted average cost of capital is not influenced by changes in its capital structure.

Both traditional view and MM theory agree that:

* The cost of equity is higher than the cost of debt.

* As the level of gearing increases, the larger proportion of debt in the capital structure means that there is a larger proportion of lower-cost finance.

* as the level of gearing rises, the cost of equity also rises, to compensate shareholders for the higher risk.

* As gearing increases, the higher proportion of low-cost debt but the rising cost of equity pull the WACC in opposite directions.
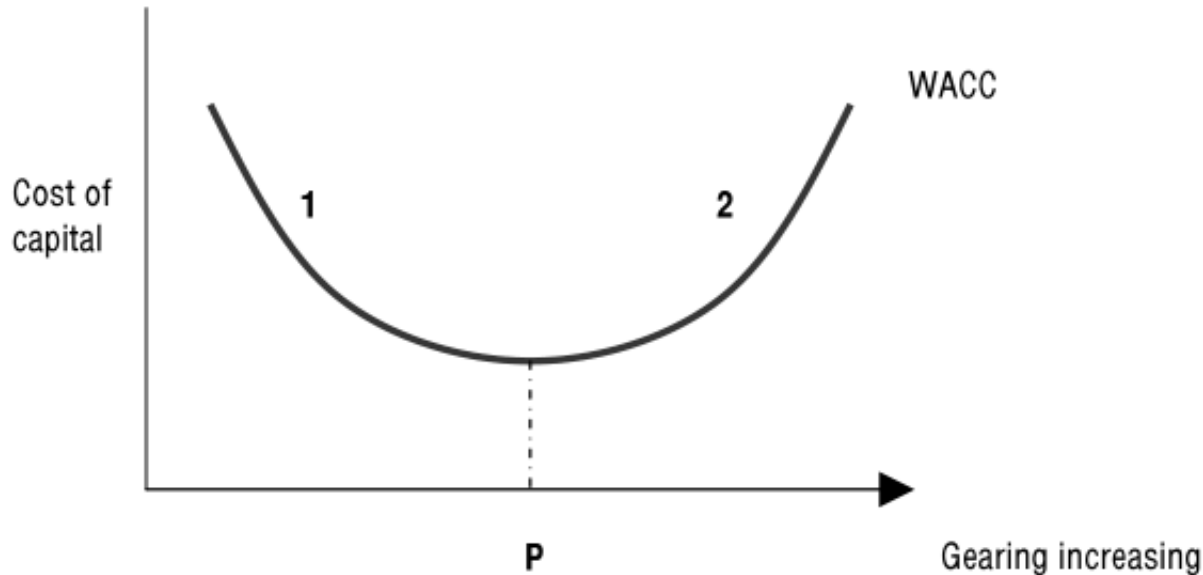
Capital Structure Theory

The traditional view:

(a) As the level of gearing increases, the cost of debt remains unchanged up to a certain level of gearing. Beyond this level, the cost of debt will increase.
(b) The cost of equity rises as the level of gearing increases and financial risk increases. There is a non-linear relationship between the cost of equity and gearing.
(c) The weighted average cost of capital does not remain constant, but rather falls initially as the proportion of debt capital increases, and then begins to increase as the rising cost of equity (and possibly of debt) becomes more significant.
(d) The optimum level of gearing is where the company's weighted average cost of capital is minimized.

Capital Structure Theory

At point 1, the cost of capital falls as the level of debt finance increases.
Point P shows the optimum level of debt
At point 2, the cost of capital increases as the level of debt finance continues to increase.

Assumptions of MM theory

(a) A perfect capital market exists, in which investors have the same information, upon which they act rationally, to arrive at the same expectations about future earnings and risks.

(b) There are no tax or transaction costs.

(c) Debt is risk-free and freely available at the same cost to investors and companies alike.

Modigliani and Miller justified their approach by the use of arbitrage.

Conclusion of MM theory: the capital structure is irrelevance for the cost of capital.

MM theory with the consideration of tax:
The cost of debt will decrease because interest rate is taxable.

The conclusion of MM theory considering tax: the company should borrow more debt for the tax shield given by interest expense.

In reality: the market is imperfect
Bankruptcy costs
Agency costs
Tax exhaustion

Recall: CAPM
Except for WACC used to estimate the cost of capital, CAPM can also be used.
It can be used to compare projects of all different risk classes and is therefore superior to an NPV approach which uses only one discount rate for all projects, regardless of their risk.

The greatest practical problems with the use of the CAPM in capital investment decisions are as follows.
(a) It is hard to estimate returns on projects under different economic environments.
(b) The CAPM is really just a single period model
(c) It may be hard to determine the risk-free rate of return .
(d) betas calculated using complicated statistical techniques often overestimate high betas, and underestimate low betas, particularly for small companies.

Using CAPM to calculate the discount rate, it is important to estimate the Beta factor.

Step 1 Get an estimate of the systematic risk characteristics of the project's operating cash flows by obtaining published beta values for companies in the industry into which the company is planning to diversify.

Step 2 Adjust these beta values to allow for the company's capital gearing level. This adjustment is done in two stages.
(a) Convert the beta values of other companies in the industry to ungeared betas, using the formula:

$$\beta_a = \beta_e \left(\frac{V_e}{V_e + V_d(1-T)} \right)$$

(b) Having obtained an ungeared beta value, convert it back to a geared beta, which reflects the company's own gearing ratio, using the formula:

$$\beta_e = \beta_a \frac{V_e + V_d(1-T)}{V_e}$$

Step 3 Having estimated a project-specific geared beta, use the CAPM to estimate a project-specific cost of equity. Calculate WACC if needed.

A company's debt:equity ratio, by market values, is 2:5. The corporate debt, which is assumed to be risk-free, yields 11% before tax. The beta value of the company's equity is currently 1.1. The average returns on stock market equity are 16%. The company is now proposing to invest in a project which would involve diversification into a new industry, and the following information is available about this industry.

(a) Average beta coefficient of equity capital = 1.59

(b) Average debt:equity ratio in the industry = 1:2 (by market value)

The rate of corporation tax is 30%. What would be a suitable cost of capital to apply to the project?

The beta value for the industry is 1.59.

Step 1 Convert the geared beta value for the industry to an ungeared beta (asset beta) for the industry.

$$\beta_a = 1.59 \left(\frac{2}{2 + (1(1 - 0.30))} \right) = 1.18$$

Step 2 Convert this ungeared industry beta back into a geared beta, which reflects the company's own gearing level of 2:5.

$$\beta_e = 1.18 \left(\frac{5 + (2(1 - 0.30))}{5} \right) = 1.51$$

Step 3 (a) This is a project-specific beta for the firm's equity capital, and so using the CAPM, we can estimate the project-specific cost of equity as: k_{eg} = 11% + (16% – 11%) 1.51 = 18.55%
(b) The project will presumably be financed in a gearing ratio of 2:5 debt to equity, and so the project-specific cost of capital ought to be: [5/7 *18.55%] + [2/7*70% *11%] = 15.45%

Weaknesses in the formula:

(a) It is difficult to identify other firms with identical operating characteristics.

(b) Estimates of beta values from share price information are not wholly accurate.

(c) There may be differences in beta values between firms caused by:

   (i) Different cost structures

   (ii) Size differences between firms

   (iii) Debt capital not being risk-free

(d) If the firm for which an equity beta is being estimated has opportunities for growth that are recognised by investors, and which will affect its equity beta, estimates of the equity beta based on other firms' data will be inaccurate, because the opportunities for growth will not be allowed for.

The following statements relate to capital structure theory.

1   The traditional view is that, in the absence of tax, a company's capital structure would have no impact upon its weighted cost of capital (WACC)
2   The net operating income approach (MM) assumes that debt is risk-free

Are the statements true or false?
A Both statements are true
B Both statements are false
C Statement 1 is true and statement 2 is false
D Statement 2 is true and statement 1 is false

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Thank You!