COST OF CAPITAL - WACC

It means Investor's required return and company/finance manager calculate WACC with view point of investor.

Two Methods:

1. Valuation Method
2. CAPM

Valuation Method

Cost of Equity = Ke = by Dividend Growth Model

Ke = Do / Po
Ke = [Do(1+g) / Po] + g
Where:
Do = Current Dividend
Po= Current Share Price (Ex-Dividend)

Growth

By Gordon Model = b X r (Where b means retention ratio – other side of dividend payout ratio and r = ROI/Ke)

By Geometric Mean Method

$$G = [Do/Db)]^{1/n} - 1$$

Do = Current Dividend
Do = Base Year Dividend

Cost of Debts = Kd = by Valuation Model

1. Non Marketable Debts: Kd = Coupon Rate
2. Marketable Debts:

   Redeemable Debts: Kd = IRR
   Irredeemable Debts: Kd = Interest / Market Value of Debts

CAPM Method

Ke by CAPM Method

Ke = Rf + (Rm – Rf) Be

Rf = Risk Free Rate of Return
Rm = Market Rate of Return
Rm – Rf = Risk Premium.
Be = Risk Adjustment Factor (Systematic Risk & Financial Risk) – Geared Beta.
Ba = Risk Adjustment Factor (Systematic Risk Only) – UnGeared Beta
Ba = Be X E / E + D (1-t) – Assuming Debt Beta 0

Important Points:

Ke by CAPM is superior method as compare to DVM

Investment Analysis with Expansion we use the existing Be & Ke for the WACC.

Investment Analysis with Diversification the following 3 steps need to follow for Be and Ke:

1. Un-Geared Beta from proxy company = *Ba = Be X E / E + D (1-t)*
2. Re-Geared the Beta with own Capital Structure – Rearrange this formula = *Ba = Be X E / E + D (1-t)*
3. Use the Step 2 Be to calculate Ke

Kd by CAPM Method

Kd = Rf + (Rm – Rf) Bd
This formula is only applicable if Debt Beta is given.

Important Theory:WACC

Portfolio theory suggests that the total risk of a portfolio of investments can be reduced by diversifying the investments held in the portfolio, e.g. by investing capital in a number of different shares rather than buying shares in only one or two companies.

Even when a portfolio has been well-diversified over a number of different investments, there is a limit to the risk-reduction effect, so that there is a level of risk which cannot be diversified away. This undiversifiable risk is the risk of the financial system as a whole, and so is referred to as **systematic risk** or market risk.

Systematic Risk (Market Risk or Inherent Risk) is the risk inherent to market as a whole, which the shareholder can't mitigate by holding diversified portfolio.

Diversifiable risk, which is the element of total risk which can be reduced or minimised by portfolio diversification, is referred to as **unsystematic risk** or specific risk, since it relates to individual or specific companies rather than to the financial system as a whole.

Portfolio theory is concerned with total risk, which is the sum of systematic risk and unsystematic risk.

The capital asset pricing model assumes that investors hold diversified portfolios, and so is concerned with systematic risk alone.

Business Risk is the risk related to the shareholder's return fluctuates as a result of the company's business. Business risk linked to the extent to which the company's profits (PBIT) depend upon the fixed rather than variable operating cost.

Financial Risk relates to the risk that the shareholders return fluctuates as a result of the level of debt the company undertakes. It arise where company is obliged to pay the interest cost, which reduce the amount of profit available to be distributed to shareholders.

WACC: Book Value VS Market Value

Question: BKB

4 MARKS = 2 WELL EXPLAIN POINTS

Market values are preferable to book values when calculating WACC, because they reflect the current value of the company's capital STRUCTURE.

*If book values are used instead of market values, this will seriously understate the proportion that **equity** represents in the company's capital structure. This is because the market value of ordinary shares is usually significantly higher than its nominal book value.*

*Understating the impact of the cost of equity on the WACC will most likely cause the WACC to be understated, since, as we can see in the answer above, the cost of equity is greater than the cost of debt. Under-estimating the WACC will skew the company's investment appraisal process as a lower discount rate is used, and cause the company to make **sub-optimal investment decisions.***

Using book values instead of market values will also change the value of debt in the company's capital structure. The impact of understating or overstating the value of debt would be less significant than is the case for equity, because debt instruments are often traded at close to their nominal value.

CAPITAL STRUCURE THEORY

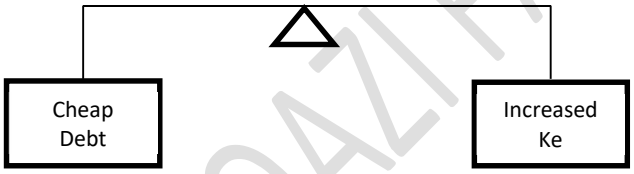
INTRODUCTION: WHAT IS ABOUT DISCUSSION?

A discussion of capital structure could start from recognizing that equity is more expensive than debt because of the relative risk of the two sources of finance. Equity is riskier than debt and so equity is more expensive than debt. This does not depend on tax efficiency of debt, since we can assume that no taxes exit. We can also assume that as a company gears up, it replaces equity with debt. This means that the company's base remains constant and its weighted average cost of capital (WACC) is not affected by increasing investment.

TRADITIONAL THEORY

The traditional view of capital structure assumes a non-linear relationship between the cost of equity and financial risk. As a company gears up, there is initially very little in the cost of equity and the WACC decreases because the cost of debt is less than the cost of equity. A point is reached, however, where the cost of equity rises at a rate that exceeds the reduction effect of cheaper, debt and the WACC starts to increase. In the traditional view, therefore, a minimum WACC exists and, as a result, a maximum value of the company arises.

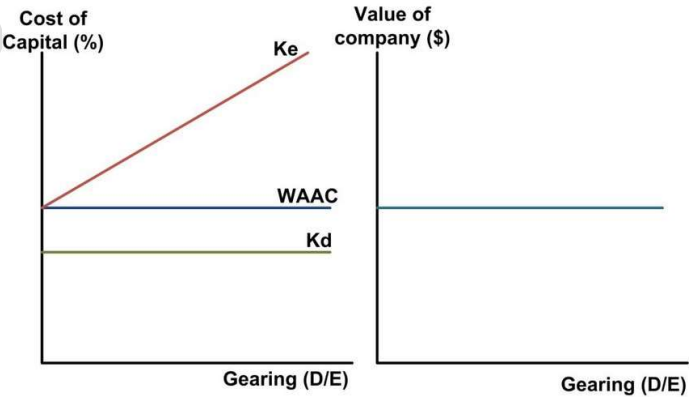
MM – NO TAX



Modigliani and Miller assumed a perfect capital market and a linear relationship the cost of equity and financial risk. They argue that, as a company geared up, the cost of equity increased at a rate that exactly cancelled out the reduction effect of cheaper debt. WACC was therefore constant at all levels of gearing and no optimal capital structure, where the value of the company was at a maximum, could be found.

Value of geared firm = Value of Ungeared Firm

VG = VUG

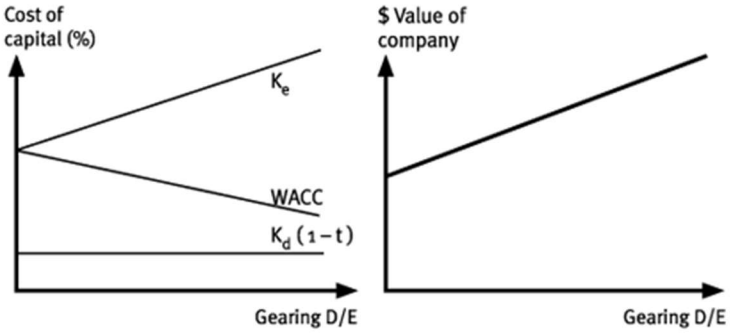


MM – WITH TAX

It was argued that the no-tax assumption made by Modigliani and Miller was unrealistic, since in the real world interest payment were an allowable expense in calculating table profit and so the effective cost of debt was reduced by its tax efficiency. They revised their model to include this tax effect and showed that, as a result the WACC decreased in a linear fashion as a company geared up. The value of the company increased by the value of the ax shield and an optinial capital structure would result by gearing up as much as possible.

Value of Geared Firm = Value of Ungeared Firm + Tax Shield (Advantage of Tax)

VG = VUG + DT



CRTICISM ON MM THEORY

It was pointed out that market imperfections associated with high levels of gearing, such as bankruptcy risk and agency costs would limit the extent to which a company could gear up. In practice, therefore, it appears that companies can reduce their WACC by increasing gearing, while avoiding the financial distress that can arise at high levels of gearing.

PECKING ORDER THEORY

It has further been suggested that companies choose the source of finance which, for one reason or another, is easiest for them to access (packing order theory).
This result in an initial preference for retained earing, followed by a preference for debt before turning to equity. The view suggests that companies may not in practice seek to minimize their WACC (and consequently maximize company value and shareholder wealth).

Business Finance Arrangement with these sequence:

- INTERNAL FINANCE
- EXTERNAL
    - DEBTS
    - EQUITY LIKE RIGHTS ISSUE