equaliFi ACADEMY

CTM

CERTIFICATE IN INTEGRATED TREASURY MANAGEMENT

Session 2-Capital Structure Decision and Corporate Finance

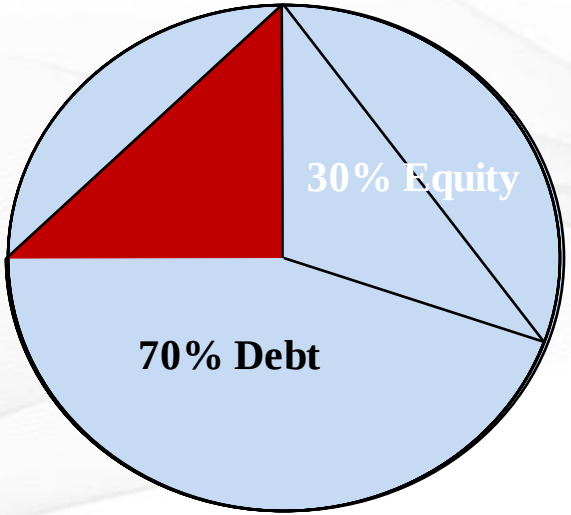
Capital Structure

The value of the firm can be thought of as a pie.

The goal of the manager is to increase the size of the pie.

The Capital Structure decision can be viewed as how best to slice up a the pie.

If how you slice the pie affects the size of the pie, then the capital structure decision matters.



Capital Structure

- “ It doesn’t matter whether a company s big or small . Capital structure matters. It always has and always will.”

  - Michael Miliken

Capital Structure Policy

- A firm has control over its capital structure, targeting an optimal capital structure.
- As more debt is issued, the cost of debt increases, and as more equity is issued, the cost of equity increases.

Factors influencing Capital Structure

The primary factors that influence a company's capital-structure decision are:

- Business risk
- Company's tax exposure
- Financial flexibility
- Management style
- Growth rate
- Market Conditions

Factors influencing Capital Structure

Business Risk

- Excluding debt, business risk is the basic risk of the company's operations. The greater the business risk, the lower the optimal debt ratio.

Company's Tax Exposure

Debt payments are tax deductible. As such, if a company's tax rate is high, using debt as a means of financing a project is attractive because the tax deductibility of the debt payments protects some income from taxes.

Factors Influencing Capital Structure

Financial Flexibility

- This is essentially the firm's ability to raise capital in bad times.

- Companies typically have no problem raising capital when sales are growing and earnings are strong.

The lower a company's debt level, the more financial flexibility a company has.

Factors influencing Capital Structure

Management Style

- Management styles range from aggressive to conservative.

- The more conservative a management's approach is, the less inclined it is to use debt to increase profits.

An aggressive management may try to grow the firm quickly, using significant amounts of debt to ramp up the growth of the company's earnings per share (EPS).

Factors influencing Capital Structure

Growth Rate

- Firms that are in the growth stage of their cycle typically finance that growth through debt, borrowing money to grow faster.

- Revenues of growth firms are typically unstable and unproven. As such, a high debt load is usually not appropriate.

- More stable and mature firms typically need less debt to finance growth as its revenues are stable and proven.

- These firms also generate cash flow, which can be used to finance projects when they arise.

Factors influencing Capital Structure

Market Conditions

- Suppose a firm needs to borrow funds for a new plant.

- If the market is struggling, meaning investors are limiting companies' access to capital because of market concerns, the interest rate to borrow may be higher than a company would want to pay.

- In such situation, it may be prudent for a company to wait until market conditions return to a more normal state before the company tries to access funds for the plant.

Risks in Financial Structure:

- Business Risk

Business risk is the risk inherent in the company's operations.

Factors are:

- Sales risk – Sales risk is affected by demand for the company's product as well as the price per unit of the product.

- Input-cost risk – Input-cost risk is the volatility of the inputs into a company's product as well as the company's ability to change pricing if input costs change.

Risks in Financial Structure:

- Financial Risk

➢A company's financial risk, however, takes into account a company's leverage. If a company has a high amount of leverage, the financial risk to stockholders is high - meaning if a company cannot cover its debt and enters bankruptcy, the risk to stockholders not getting satisfied monetarily is high.

Effect of Changes in Sales or Earnings on EBIT

➢Differing amounts of debt financing cause changes in EPS and thus a company's stock price.

Equity capital
Debt Capital
Capital Structure

Components of capital structure

- How a firm can raise money ?

- Equity
- Selling shares or ownership
- Highest possible returns/highest risk

- Debt
- Selling debt or borrowing
- The risk of being in the market

- But what mix of the two is employed?

Capital - Components

- Share Capital:

- Equity Share capital
- Retained earnings
- Preference share capital

- Debt Capital:

- Debentures / Bonds
- Loans – Secured/ Unsecured
- Fixed deposits from the public
- Medium term acceptance for capital goods/ Forfaiting
- Deferred payment Guarantee
- Hire Purchase financing

Debt

Advantages:

- Interest is tax deductible (lowers the effective cost of debt)
- Debt-holders are limited to a fixed return – so stockholders do not have to share profits if the business does exceptionally well
- Debt holders do not have voting rights

Disadvantages:

- Higher debt ratios lead to greater risk and higher required interest rates (to compensate for the additional risk)

Example

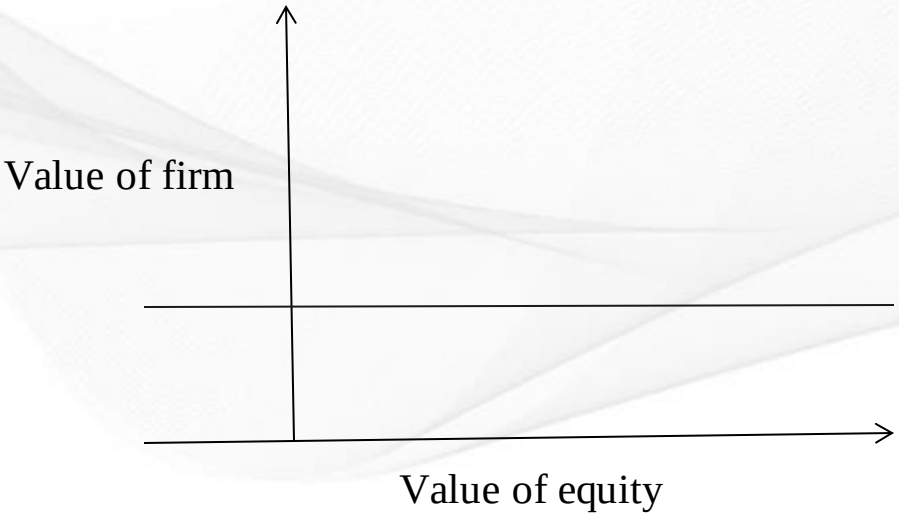
	All Equity	1/2 Debt
EBIT	1,000	1,000
Interest Pmt	0	100
Pretax Income	1,000	900
Taxes @ 40%	400	360
Net Cash Flow	*$600*	*$540*

Total Cash Flow
All Equity = 600

1/2 Debt = 640
(540 + 100)

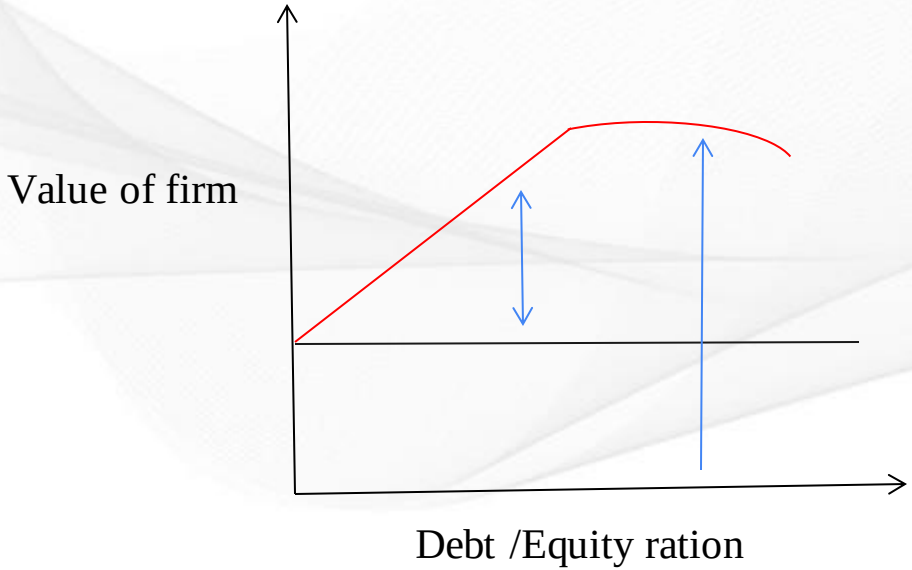
Raising capital via Equity only

- Can be capitalized only by shares
- But is this optimal ?



Mixing Equity and Debt

- As we add debt to the mixture
- At some point of time value of the firm maximized



What happens if you go too far?

- Oh !! it gets nasty –just one scenario

- Debt isn't serviced
- Creditors push the firm into bankruptcy
- Debtors seize control
- Equity is wiped out and
- The house of cards collapses

- Too much debt is bad

Factors

The profitability of the organization depends:

- Reliable cash flow
- Degree of risk
- Management risk-aversion attitudes
- Tax concessions
- Availability of the different kinds of debt instruments
- Attitude of promoters
- Nature of industry

WEIGHTED COST OF CAPITAL

Capital Structure

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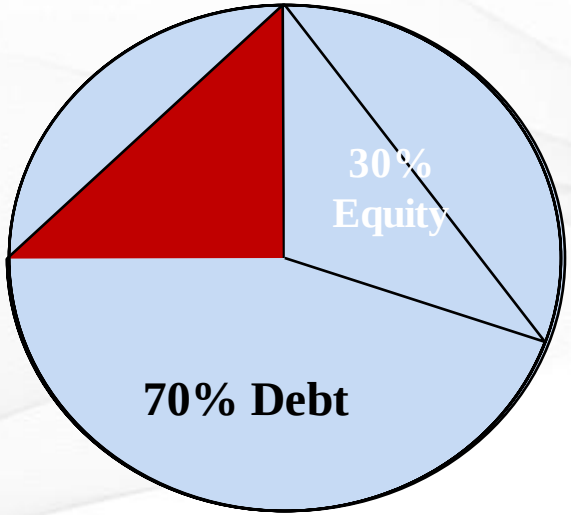


Capital - Components

Share capital

- Equity Share capital
- Retained earnings
- Preference share capital

Debt capital

- Debentures / Bonds
- Loans – Secured/ Unsecured
- Fixed deposits from the public
- Medium term acceptance for capital goods/Forfeiting
- Deferred payment Guarantee
- Hire Purchase financing

Cost of Capital

We should know the costs that make up the weighted cost of capital (WACC).

Interpreting the Cost of Capital:
A company uses
- Debt
- Common equity and
- Preferred equity to fund new projects, typically in large sums.

In the long run, companies typically adhere to target weights for each of the sources of funding. When a capital budgeting decision is being made, it is important to keep in mind how the capital structure may be affected

Cost Components

A company's weighted average cost of capital (WACC) is comprised of the following costs:

Cost of Debt

Cost of Preferred stock

Cost of Retained earnings

Cost of External equity

Cost Components

In the WACC calculation:

After-tax cost of debt is used

Using the after-tax cost takes into account the tax savings from the tax-deductibility of interest.

The after-tax cost of debt can be calculated as follows:

After-tax cost of debt = kd (1-t)

kd represents the cost to issue new debt, not the firm's existing debt.

Cost Components

Example of Debt WACC calculation:

ABC co plans to issue debt at a 7% interest rate. ABC Co's total tax rate is 40%.

What is ABC Co's cost of debt?

Answer:

kd (1-t) = 7% (1-0.40) = 4.2%

Cost Components

Cost of Preferred Stock:
Cost of preferred stock (kps) can be calculated as follows:

$$kps = Dps/Pnet$$

where:
Dps = preferred dividends
Pnet = net issuing price

Example: Assume ABC Co's preferred stock pays a dividend of Rs 2 per share and it sells for Rs100 per share. If the cost to ABC Co to issue new shares is 4%, what is ABC Co's cost of preferred stock?

$kps = Dps/Pnet = Rs\ 2/Rs\ 100(1-0.04) = 2.1\%$

Cost Components

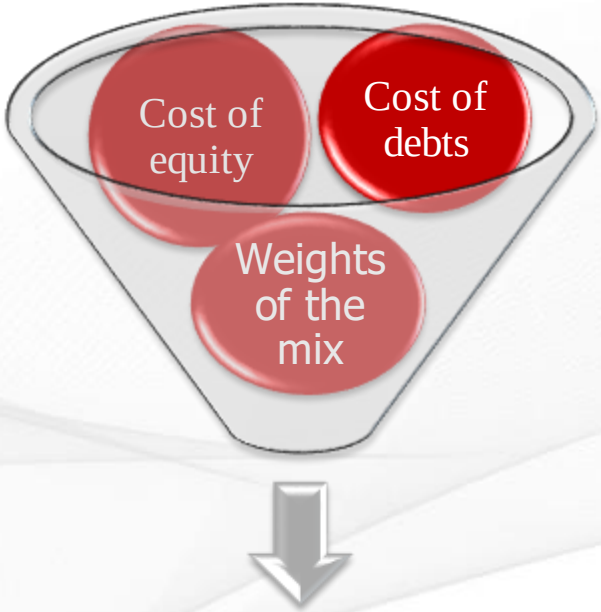
Cost of Retained Earnings:

Cost of retained earnings (ks) is the return stockholders require on the company's common stock.

There are three methods one can use to derive the cost of retained earnings:

- Capital-asset-pricing-model (CAPM) approach
- Bond-yield-plus-premium approach
- Discounted cash flow approach

Weighted Average Cost of Capital



Weighted Average Cost of Capital

Weighted Average Cost of Capital

Calculating A company's weighted average cost of capital (WACC) is calculated as follows:

The target (optimal) capital structure is simply defined as the mix of debt, preferred stock and common equity that will optimize the company's stock price. As a company raises new capital it will focus on maintaining this target (optimal) capital structure.

WACC = (wd) [kd (1-t)] + (wps)(kps) + (wce)(kce)
Where:
Wd = weight percentage of debt in company's capital structure
Wps = weight percentage of preferred stock) capital structure.

Marginal Cost of Capital

The marginal cost of capital (MCC) is the cost of the last dollar of capital raised, essentially the cost of another unit of capital raised.

As more capital is raised, the marginal cost of capital rises.

At some point, as the company continues to raise capital, the MCC can be higher than the WACC.

MCC vs WACC

In making capital decisions, a company maintains a target capital structure. There comes a point, however, when retained earnings have been depleted and new common stock has to be issued.

When this occurs, the company's cost of capital increases. This is known as the "breakpoint" and can be calculated as follows:

- Breakpoint for retained earnings = retained earnings / wce
- Wce = weight percentage of common stock in company's capital structure.

MCC vs WACC

Assume for XYZ Co we expect it to earn Rs 50 million next year and if XYZ Co payout ratio is 30%. What is XYZ Co breakpoint on the marginal cost curve, if we assume wce = 40%?

XYZ breakpoint = $\frac{\text{Rs 50 mio (1-0.3)}}{0.40}$ = Rs 87.50 mio

Thus, after XYZ Co raises roughly Rs 87.5 mio of total capital, new common equity will need to be issued.

Factors Affecting the Cost of Capital

Factors affecting cost of capital that the company has control over:

Capital-structure policy

Dividend policy

Investment policy

Factors Affecting the Cost of Capital:

Capital Structure Policy

A firm has control over its capital structure, targeting an optimal capital structure.

As more debt is issued, the cost of debt increases.

As more equity is issued, the cost of equity increases.

Factors Affecting the Cost of Capital

Dividend Policy

Given that the firm has control over its payout ratio, the breakpoint of the MCC schedule can be changed.

For example:
As the payout ratio of the company increases the breakpoint between lower-cost internally generated equity and newly issued equity is lowered.

Factors Affecting the Cost of Capital

Investment Policy

It is assumed that, when making investment decisions, the company is making investments with similar degrees of risk.

If a company changes its investment policy relative to its risk, both the cost of debt and cost of equity change.

Uncontrollable Factors Affecting the Cost of Capital

Factors affecting cost of capital that the company has no control over:

Level of interest rates
Tax rates
Level of Interest Rates
The level of interest rates will affect
Cost of debt and
Potentially, the cost of equity.

For example, when interest rates increase the cost of debt increases, which increases the cost of capital.

Uncontrollable Factors Affecting the Cost of Capital

Tax Rates

Tax rates affect the after-tax cost of debt.

As tax rates increase,

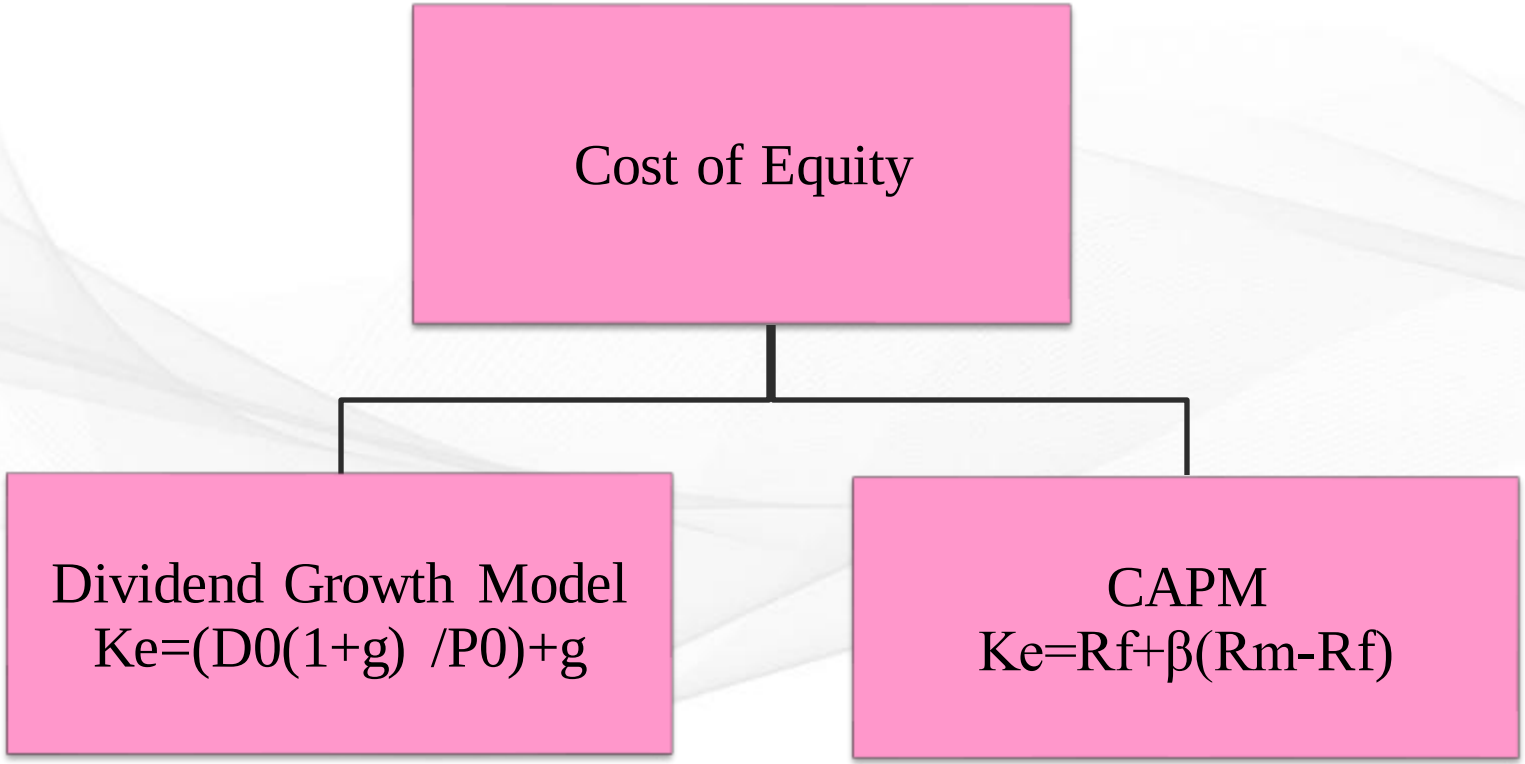
Cost of debt decreases, decreasing the cost of capital.

Cost of capital

A company creates value by investing in new projects and generating a return from investments that exceeds the cost of funds used in the project.

The rate of return required by suppliers of capital to the company.

Cost of equity



Dividend Growth Model

Example:
A company has paid Re. 1 (D0) as dividend and the company is expected to grow at 6% p.a.(g) and the price of the company's share is Rs. 20 (P0)

Find the cost of equity (Ke)

$Ke=(D0(1+g)\ /P0)+g$

$Ke=\ (1(1.06)/20)+0.06\ =11.3\%$

Dividend Growth Model Example

Assume that the dividend yield on an equity index is 8%, and the dividend growth rate is 1.5%.

Calculate the expected return for the company?

Example: Estimating k_{ce} using the dividend discount model

Suppose Dexter's stock sells for $21, next year's dividend is expected to be $1, Dexter's expected ROE is 12%, and Dexter is expected to pay out 40% of its earnings. What is Dexter's cost of equity?

Dividend Growth Model Example

Example: Calculating value for a three-period DDM

Reliable Motors shares are expected to pay dividends of $1.50, $1.60, and $1.75 at the end of each of the next three years, respectively. The investor expects the price of the shares at the end of this 3-year holding period to be $54.00. The investor's required rate of return is 15%. Calculate the current value of Reliable's shares.

Answer:

The value of Reliable Motors shares can be determined with a multi-period DDM as:

$$\frac{\$1.50}{1.15^1}+\frac{\$1.60}{1.15^2}+\frac{\$1.75+\$54.00}{1.15^3}=\$39.17$$

Note: DDM stands for (Dividend Discount Model)

Dividend Growth Model Advantages

- Is applicable to stable, mature, dividend -paying firms.
- Is appropriate for valuing market indices.
- Is easily communicated and explained because of its straightforward approach.
- Can be used to determine price ~ implied growth rates, required rates of return, and Value of growth opportunities.
- Can be used to supplement other, more complex valuation methods.

Dividend Growth Model Disadvantages

•Valuations are very sensitive to estimates of growth rates and required rates of return, both of which are difficult to estimate with precision.

•The model cannot be easily applied to non-dividend-paying stocks.

•Unpredictable growth patterns of some firms would make using the model difficult and valuations may be unreliable.

Cost Of Preference Share

Suppose a company has preferred stock that pays an Rs. 8 dividend per share and sells for Rs. 100 per share.

What is the cost of preferred stock ?

$$k_{ps} = D_{ps} / P$$

$$k_{ps} = \$8 / \$100 = 0.08 = 8\%$$

Capital-Asset-Pricing-Model (CAPM) Approach

As Regression

The CAPM puts structure – i.e., how investors form efficient portfolios - to Markowitz's (1952) mean-variance optimization theory.

The CAPM assumes only one source of systematic risk: Market Risk
- Cannot be diversified
- Has to be hedged
- In equilibrium it is compensated by a risk premium

The stock market exposes investors to a certain degree to market risk.
=> Investors will be compensated.

The compensation will be proportional to your risk exposure.

CAPM Example

The return on market is 15%. And Beta of company is 1.2 and risk free return is 8%.

Find cost of capital?

$Ke = Rf+\beta\ (Rm-Rf) = 8\%+1.2(15\%-8\%) = 16.4\%$

Ke – Cost of Capital (Return Required)
Rf- Risk Free Return
β - Beta
Rm – Return on market

CAPM - Advantages

Simplicity

It provides a good benchmark (performance evaluation, etc.)

It distinguishes between diversifiable and non-diversifiable risk.

CAPM - Disadvantages

It is likely that other sources of risk exist.

Omitted variable bias in the estimates of βi

Example

If a company's stock has a beta of 1.2, the risk free rate is 5% and the market risk premium is 2%.

Calculate the cost of equity for the company?

Suppose RFR = 6%, R_{mkt} = 11%, and Dexter has a beta of 1.1. Estimate Dexter's cost of equity.

Cost of Debt

Kd= I(1-t)

Example :

Company has a loan from the bank at 12 % per annum.
What is cost of debt ?

Kd = 0.12(1-.30) = 8.4%

Deriving WACC

Structure example	Value	Weights	Pre tax cost	Post tax cost	Cost
Equity	1000	2	-	18%	36
Bonds	2000	4	13%	8%	32
Fixed deposits	500	1	12.5%	7.69%	7.79
Total					75.69

WACC =75.69/7=10.82%

Example

A company has the following capital structure; 40% debt, 50% equity, and 10% preferred stock.

The company's before tax cost of debt is 6%, cost of common equity is 8% and cost of preferred equity is 7%.

The company falls in the 45% tax bracket.

Calculate the company WACC?

Example

ABC Corp has 1.4 million shares common valued at Rs20 per share =Rs28 million. Debt has face value of Rs5 million and trades at 93% of face (Rs4.65 million) in the market.

Total market value of both equity + debt thus
= Rs 32.65 million.

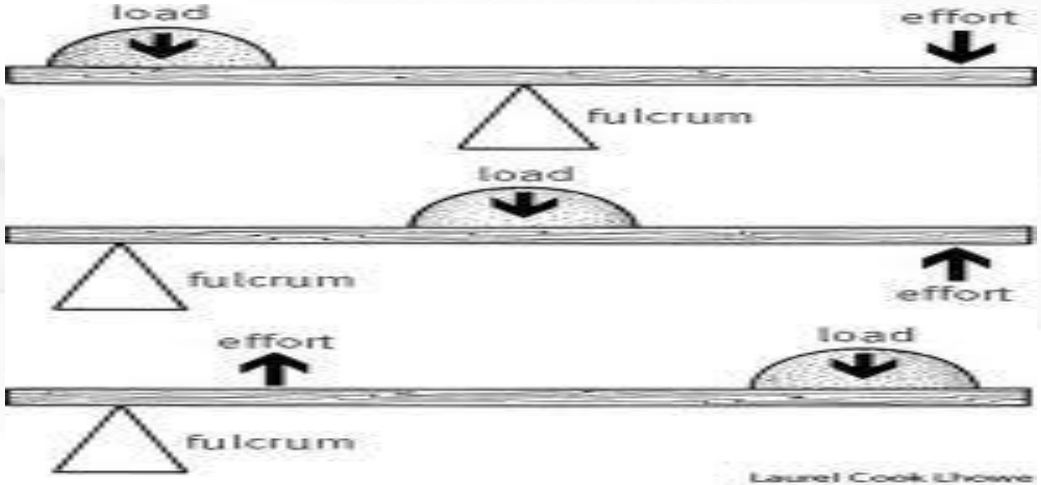
Equity % = .8576 and Debt % = .1424

- Risk free rate is 4%, risk premium=7% and ABC's β=.74
- Tax rate is 40%
- Current yield on market debt is 11%

LEVERAGE

Concept of leverage

Leverage is a handle available to facilitate doing a work as easily as possible



Leverage: Definition

The use of various financial instruments or borrowed capital, such as margin, to increase the potential return of an investment.

The amount of debt used to finance a firm's assets. A firm with significantly more debt than equity is considered to be highly leveraged.

Leverage is most commonly used in real estate transactions through the use of mortgages to purchase a home.

Leverage: Creation

Leverage can be created through options, futures, margin and other financial instruments.

For example, say you have Rs10,000 to invest. This amount could be invested in 10 shares of Infosys stock, but to increase leverage, you could invest the Rs10,000 in five options contracts. You would then control 500 shares instead of just 10.

Most companies use debt to finance operations.

Leverage: Uses

By doing so, a company increases its leverage because it can invest in business operations without increasing its equity.

E.g., if a company formed with an investment of Rs 5 million from investors, the equity in the company is Rs 5 million - this is the money the company uses to operate.

If the company uses debt financing by borrowing Rs 20 million, the company now has Rs 25 million to invest in business operations and more opportunity to increase value for shareholders.

Leverage helps both the investor and the firm to invest or operate.

Leverage: Risks

If an investor uses leverage to make an investment and the investment moves against the investor, his or her loss is much greater than it would've been if the investment had not been leveraged.

Leverage magnifies both gains and losses.

In the business world, a company can use leverage to try to generate shareholder wealth, but if it fails to do so,

- Interest expense and
- Credit risk of default destroys shareholder value.

Types of Leverage

Leverage to a business enterprise is of two kinds:

Operating leverage

- Operating Leverage is leveraging the operations against the fixed operating costs of the business enterprise

- The higher the fixed costs as a percentage of total costs, the higher the company's operating leverage.

- For companies with high operating leverage, a small change in company revenues will result in a larger change in operating income since most costs are fixed rather than variable.

Degree of Operating leverage (DOL)

DOL is the percentage change in operating income (EBIT), divided by the percentage change in sales.

It is the measure of the sensitivity of EBIT to changes in sales as a result of changes in operating expenses.

Degree of operating leverage is also commonly estimated using production output.

$$DOL = \frac{\text{change in EBIT/EBIT}}{\text{change in sales/sales}} \text{ or } \frac{Q(P - V)}{Q(P - V) - F}$$

Assumption

This is based on the assumption that in the short-run, the fixed operating costs in a business enterprise do not change.

We need to define two things here:

- Fixed operating costs and
- Short-run

Example

There are two firms and their financials has been given below:

Parameter	Firm A	Firm B
Sales	100	110
Fixed operating costs	70	20
Variable costs	20	70
EBIT	10	20
Fixed costs/Total costs	78%	22%
Fixed costs/Sales	70%	18%

- Now Assume there is 50% increase in sales

50% increase in sales	Firm A	Firm B
Sales	150	165
F.C.	70	20
V.C.	30	105
EBIT	50	40
Change in EBIT (Δ EBIT)	400%	100%

Example

Parameters	Period 1	Period 2
Sales	100	110
F.C.	---	---
V.C.	70	77
EBIT	30	33
Change in EBIT (Δ EBIT)	---	10%
Operating leverage	----	1 (Δ EBIT/Δ Sales)

Operating leverage is the use of fixed costs rather than variable costs.

Conclusion

For each level of output, the DOL changes
At the break-even point, DOL cannot be defined;
Below break-even point, DOL is negative;
Above break-even point, DOL is positive
Operating leverage represents the risk associated with the scale of operations.
Operating leverage can also be referred to as a measure of "business risk".

Financial Leverage

Financial leverage can be defined as the degree to which a company uses fixed-income securities, such as debt and preferred equity.

With a high degree of financial leverage come high interest payments.

As a result, the bottom–line earnings per share is negatively affected by interest payments.

As interest payments increase as a result of increased financial leverage, EPS is driven lower.

Financial Leverage

As a company increases debt and preferred equities, interest payments increase, reducing EPS.

As a result, risk to stockholder return is increased.

A company should keep its optimal capital structure in mind when making financing decisions to ensure any increases in debt and preferred equity increase the value of the company.

Degree of Financial Leverage (DFL)

DFL measures the percentage change in earnings per share over the percentage change in EBIT.

It is the measure of the sensitivity of EPS to changes in EBIT as a result of changes in debt.

$$\text{DFL} = \frac{\text{percentage change in EPS or EBIT}}{\text{percentage change in EBIT}} \quad \frac{\text{EBIT}}{\text{EBIT- Int.}}$$

Financial Leverage

Advantage of debt in preference to equity, its usefulness to increase Earning Per Share (EPS) for shareholder.

- It measures the sensitivity of the undertaking's Earnings Per Share (EPS) to the changes in the Earnings Before Interest and Tax (EBIT)

- The basic assumption for this is that source of funds (whether equity or debt) does not affect the EBIT whereas it does affect the EPS

- This is based on the advantage of interest on debt being a pre-tax expense

Example

	Unit 1	Unit 2
Equity share capital	Rs. 100 lacs = 1 lac shares	Rs. 200 lacs = 2 lac shares
Debt capital @ 14% interest	Rs. 300 lacs	Rs. 200 lacs
EBIT	Rs. 150 lacs	Rs. 150 lacs
Less: Interest	Rs. 42 lacs	Rs. 28 lacs
EBT or PBT	Rs. 108 lacs	Rs. 122 lacs
Tax say at 35%[1]	Rs.37.8 lacs	Rs.42.7 lacs
EAT or PAT	Rs.70.2 lacs	Rs.79.3 lacs
Earnings Per share (EPS)	Rs. 70.20	Rs. 39.65

[*Actual tax rate is at present = 35% + 10% Surcharge thereon making a total of 38.5%

Observations:

As debt component increases in a capital structure, EPS also increases.

Presence of corporate tax makes the difference

In the absence of taxes, the difference in EPS will be negligible

Risk of Increasing FL

Risk of default in repayment of debt – stage 1
Default in payment of interest on debt – stage 2
Increasing perception of risk in the eyes of the lender/market
Strong possibility of increase in rates of interest on various components of debt.
Investors shying away from the company.
Reduction in the share price in the secondary market and hence reduction in share holders' wealth.

Usefulness of financial leverage

It enables a business enterprise to designate its capital structure with proper mix of debt and equity.

It also tells the management to evolve what is known as “debt policy” suitable for the industry in which they are operating.

It tells the management how to increase the Earnings Per Share (EPS) of course up to a point, beyond which any further increase in debt becomes counterproductive.

Financial leverage is a measure of financial risk associated with a business enterprise.

Total Leverage

It's a Combination of operating and financial leverage

- Total leverage is a measure of total firm risk = business risk (operating leverage) + financial risk (financial leverage)

- It measures the sensitivity of the firm's Earnings per share (EPS) to the changes in output, i.e., sales

- It combines the operating leverage and financial leverages of the firm.

- Formula is = (Δ EPS/EPS)/(Δ Sales/Sales)

Conclusion

Leverage is a double-edged sword:

- If used properly it will enhance the operating efficiency of the firm by increasing the EBIT in response to sales (operating leverage) and maximize the return to shareholders by increasing the EPS in response to EBIT.

- Simultaneously if not used properly, the results could be disastrous in the sense that the firm's operating risk and financial risk both increase

Combined Leverage

The combination of operating leverage and financial leverage is called combined leverage or total leverage.

Operating leverage measures operating or business risk where as financial leverage measures financial risk. Combined leverage measures total risk of the business.

Operating leverage is measured by the percentage change in earnings before interest and tax due to percentage change in sales whereas financial leverage is measured by percentage change in earning before tax or earning per share due to percentage change in earnings before interest and tax.

Thus, the combined leverage is measured by percentage change in earning per share (EPS) due to percentage change in sales.

Combined Leverage

Measuring Degree Of Combined Leverage (DCL) On the Basis of Income Statement.

DCL = DOL x DFL = (CM/EBIT) x (EBIT/EBT) = CM/EBT

Where,
DCL = degree of combined leverage
DOL = degree of operating leverage
DFL = degree of financial leverage
CM = contribution margin
EBIT= earning before interest and tax
EBT = earning before tax

Measuring Degree Of Combined Leverage By Using Formula

DCL = Sales- variable cost/Sales - variable cost - fixed cost – interest. i.e. = S_VC/S-VC-FC-I

Thank You