Strategic Finance and Corporate Restructuring

Block

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STRATEGIC FINANCIAL MANAGEMENT

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COURSE INTRODUCTION

This course provides the framework for Strategic Finance and Corporate Restructuring. Strategic financial management helps in framing the possible strategies capable of maximizing an organization's net present value, the allocation of scarce capital resources among the competing opportunities, and the implementation and monitoring of the chosen strategy so as to achieve the organizational objectives. This course will help students gain an insight into strategic capital structure theories, managerial decision models, real options and restructuring strategies like mergers and acquisitions, takeover etc.

The course has been divided into the following blocks:

This introductory block gives an overview of strategic financial management, capital allocation, capital structure and dividend decisions. This block also covers investment options.

The second block entitled Advanced Corporate Finance gives an overview of decision support models, financial distress and restructuring, real options, working capital management and strategic cost management.

The third block contains the corporate restructuring activities such as mergers and acquisitions, different forms of mergers and acquisitions, methods of various approaches to valuation of firms, theories of mergers such as efficiency theories, information and signaling, agency problem, hubris hypothesis etc.

The fourth block on Techniques of Corporate Restructuring discusses various techniques of corporate restructuring such as sell offs and divestitures, spin offs, equity carve outs, split ups, split offs, joint ventures, going private, leveraged buyouts, ESOPs, MLPs, buy-back of shares, exchange offers, etc. This block also discusses takeover defenses.

This edition has added a large number of contemporary examples and deleted old examples and exhibits.

BLOCK 1: STRATEGIC FINANCIAL MANAGEMENT

This is the introductory block for Strategic Finance and Corporate Restructuring text book. This block briefly reviews the basic concepts of strategic financial management. It discusses about capital allocation, capital structure and dividend decisions. This block consists of four units.

The first unit discusses about maximizing an organization's net present value which is the main objective of any firm. Identification of the possible strategies and allocation of scarce capital resources among the competing opportunities and the implementation and monitoring of the chosen strategy are the insights of strategic financial management. This unit also covers Agency theory, financial and non-financial objectives of a firm, and framing of strategy.

Unit 2 outlines the concept of capital structure and various factors affecting it. The combination of different long-term finances of a company is called its capital structure. In addition to this, it covers different theories of capital structure.

Unit 3 discusses about dividend policy of a firm. Dividend policy determines retention ratio and pay-out ratio of the profits earned by the company during the financial year. It affects the share price of the company in the market. This unit outlines various models of divided policies available to a firm to maximize the present market price of the company's shares.

Unit 4 covers the calculation of economic value of a project which is very essential for allocating capital. There are a number of methods to evaluate the projects. This unit also covers allocating capital and corporate strategy.

Unit 1

Strategic Financial Management: An Overview

Structure

"Finance without strategy is just numbers, and strategy without finance is just dreaming."

- *E. Faber*

1.1 Introduction

Maximizing the present value is the main objective of any firm, but in addition to this, it has to fulfill the social responsibilities and adopt shot-term and long-term survival strategies. Hence, Strategic Financial Management plays a crucial role. One of the popular definitions of strategic financial management as per the official terminology of the CIMA is, "the identification of the possible strategies capable of maximizing an organization's net present value, the allocation of scarce capital resources among the competing opportunities and the implementation and monitoring of the chosen strategy, so as to achieve stated objectives". So, it can be said that, strategy depends on the stated objectives or targets.

In this unit, we shall discuss agency theory, goal congruence, financial planning and strategic planning.

1.2 Objectives

After going through the unit, you should be able to:

- Explain the financial and non-financial objectives of a company
- Describe the Agency Theory
- Identify the primary reasons for conflicts of interest
- Classify financial planning and strategic planning

1.3 Financial Objectives of a Company

It is needless to say that one of the most important objectives of a company is maximizing the wealth of its shareholders. It is to be kept in mind that a company is financed by its ordinary shareholders, preference shareholders, loan stock holders and other long-term and short-term creditors. Any retained profits are the undistributed wealth of the equity shareholders. The non-financial objectives do not ignore financial objectives altogether, but they point towards the fact that the simple theory of company finance which postulates that the primary objective of a firm is to maximize the wealth of ordinary shareholders, is too simplistic. In essence, the financial objectives may have to be compromised in order to satisfy non-financial objective.

Value Enhancement in the Business Parlance

When the prices of the shares of a company that are traded on a stock market rises, the wealth of the shareholders tends to get increased. The price of a company's share goes up when the company is expected to make attractive profits, which it plans to pay as dividends to its shareholders or re-invest in the business to achieve future profit growth and dividend growth. However, it is also to be kept in mind that in order to increase the price of the share, the company should achieve its profits without taking business risks and financial risks which might worry its shareholders.

Example: Value Enhancement Efforts by Murugappa Group

Murugappa group, an INR 417 billion conglomerate, with high reputation for value creation of the owners and high standards of governance, has acquired loss-making CG power and Industrial Solutions from the Thapar group at ₹ 700 crore in the month of August 2020 and restructured it through asset sale and capital infusion. Within a year, the company achieved turnaround. The revenue and net profit of the CG power and Industrial Solutions for the first half of FY22 grew by 144% and 278%, respectively, year-on-year. The one-year gain on the stocks was to the extent of 860% and the market cap has increased to ₹ 21,014 cr. Murugappa group with over 28 businesses in its fold is one of the top wealth creators for its shareholders which is the most important financial objective of a business.

Source: https://economictimes.indiatimes.com/markets/stocks/news/wealth-creators-and-destroyers/articleshow/88432254.cms?from=mdr dated 23rd December 2021. Accessed on 4th July, 2022.

1.4 Non-Financial Objectives of a Company

Having discussed the financial objectives of the firm at length, let us now look into some of the non-financial objectives. The non-financial objectives of a firm can be as follows:

a. General welfare of the employees, which includes providing the employees with good wage, salaries, comfortable and safe working conditions, good training and career developments and good pensions.

b. Welfare of the management which includes providing them with the better salaries and perquisites though it will be at the cost of the company's expenditure.

c. Welfare of the society as a whole. For example, the oil companies confront with the problem of protecting the environment and preserving the earth's dwindling energy resources.

d. Fulfillment of responsibilities towards customers and suppliers.

e. Leadership in research and development.

Example: Non-Financial Objectives of ONGC

Oil and Natural Gas Corporation Ltd (ONGC), the Government oil and gas major, has signed a Memorandum of Understanding (MoU) with Solar Energy Corporation of India (SECI) on 2nd December, 2021, in New Delhi. The MoU provides a broad framework for ONGC and SECI to work together for undertaking renewable energy projects for protecting the environment and preserving the earth's dwindling energy resources. The renewable energy resources will include solar, wind, solar parks, EV value chain, green hydrogen, storage, etc. ONGC officials while signing the MoU with SECI informed of the company's commitment towards energy security of the country and to carrying its business in a sustainable manner. They also emphasized that the important objective of ONGC is to work on multipronged strategy to make its green energy portfolio richer and steadily move towards carbon neutrality by effective carbon management and adding Renewable Energy Capacity.

Source: https://www.ongcindia.com/wps/wcm/connect/en/media/press-release/seci-develop-renewable dated 3rd December 2021. Accessed on 4th July, 2022

1.5 Agency Theory

Agency theory is often described in terms of the relationships between the various interested parties in the firm. The theory examines the duties and conflicts that occur between parties who have an agency relationship. Agency relationships occur when one party, the principal, employs another party, called the agent, to perform a task on their behalf. Agency theory is helpful in explaining the actions

of the various interest groups in the corporate governance debate. For example, managers can be seen as the agents of shareholders, employees as the agents of managers, managers and shareholders as the agents of long and short-term creditors, etc. In most of these principal-agent relationships conflicts of interest is seen to exist. It has been widely observed the conflicts of interest between shareholders and managers. Although the actions of all the parties are united by one mutual objective of wishing the firm to survive, the various principals involved might make various arrangements to ensure their agents work closer to their own interests. For example, shareholders might insist that part of management remuneration is in the form of a profit related bonus. The agency relationship arising from the separation of ownership from management is sometimes characterized as the agency problem. For example, if managers hold none or very little of the equity shares of the company they work for, what is to stop them from: Working inefficiently? Not bothering to look for profitable new investment opportunities? Giving themselves high salaries and perks?

One power that shareholders possess is the right to remove the directors from office. But shareholders have to take the initiative to do this, and in many companies, the shareholders lack the energy and organization to take such a step. Even so, directors will want the company's report and accounts, and the proposed final dividend, to meet with shareholders' approval at the AGM. Another reason why managers might do their best to improve the financial performance of their company is that managers' pay is often related to the size or profitability of the company. Managers in very big companies, or in very profitable companies, will normally expect to earn higher salaries than managers in smaller or less successful companies. Perhaps the most effective method is one of long-term share option schemes to ensure that shareholder and manager objectives coincide. Management audits can also be employed to monitor the actions of managers. Creditors commonly write restrictive covenants into loan agreements to protect the safety of their funds. These arrangements involve time and money both in initial set-up, and subsequent monitoring, these being referred to as agency costs.

Stakeholder Groups and Strategy

The actions of stakeholder groups in pursuit of their various goals can exert influence on strategy. The greater the power of the stakeholder, the greater the influence will be. Each stakeholder group possesses different expectations about what it wants, and the expectations of the various groups' conflicts with each other. Each group, however, tends to influence strategic decision-making. The relationship between management and shareholders is sometimes referred to as an agency relationship, in which the managers act as agents for the shareholders, using delegated powers to run the affairs of the company in the shareholders' best interests.

Example: Lakshmi Vilas Bank's Shareholders Exercise their Right

The shareholders of Lakshmi Vilas Bank have voted against the appointment of seven directors to its board, including that of Mr. S. Sundar as the managing director and chief executive officer. The shareholders rejected the appointments of Mr. N. Saiprasad, Mr. K.R. Pradeep and Mr. Raghuraj Gujjar as non-executive and non-independent directors, and Mr B.K. Manjunath, Mr. Gorinka Jaganmohan Rao and Mr. Y.N. Lakshminarayana Murthy as non-executive and independent directors. The shareholders used the right they possess to remove the directors from office. The shareholders have taken this extreme step to protect the bank from imminent collapse as the capital adequacy ratio stood at 0.17% as against the regulatory minimum of 10.87% in June 2020. The bank reported a net loss of ₹ 112.28 crore in the June quarter of FY21, compared with a loss of ₹ 237.25 crore in the same period last year and attributed to the present situation due to mismanagement of the institution by the directors and the CEO.

Source: https://www.livemint.com/industry/banking/lakshmi-vilas-bank-shareholders-reject-directors-appointments-11601181374054.html dated 27th September 2020. Accessed on 4th July, 2022.

Self-Assessment Questions – 1

a. What are the non-financial objectives of a firm?

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b. Describe the relationship between management and shareholders.

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1.6 Conflict of Interests in a Firm

The possible areas for conflicts of interests in a firm are discussed hereunder- Maximization of Shareholder Wealth Although most of the financial management theory is developed keeping in mind the assumed objective of maximizing shareholder wealth, it is, at the same time, important to note that in reality, companies may be working towards other objectives. The other parties that share interests in the organization (e.g., employees, the community at large, creditors, customers, etc.) have objectives that differ to those of the shareholders. As the objectives of these other parties might conflict with those of the shareholders, it will be impossible to maximize shareholder wealth and satisfy the objectives of

other parties at the same time. In such situations, the firm faces multiple, conflicting objectives, and satisfying of the interested parties' objectives becomes the only practical approach for management. If this strategy is adopted, then the firm seeks to earn a satisfactory return for its shareholders while at the same time (for example) is able to pay reasonable wages to its workforce.

Goal Congruence

Goal congruence is the term which describes the situation when the goals of different interest groups coincide. A way of helping to achieve goal congruence between shareholders and managers is by the introduction of carefully designed remuneration packages for managers which would motivate managers to take decisions which are consistent with the objectives of the shareholders. Agency theory sees employees of businesses, including managers, as individuals, each with his or her own objectives. Within a department of a business, there are departmental objectives. If achieving these various objectives also leads to the achievement of the objectives of the organization as a whole, there is said to be goal congruence.

Achieving Goal Congruence

Goal congruence can be achieved, and at the same time, the 'agency problem' can be dealt with, providing managers with incentives which are related to profits or share price, or other factors such as:

a. Pay or bonuses related to the size of profits termed as profit-related pay.

b. Rewarding managers with shares, for example, when a private company 'goes public' and managers are invited to subscribe for shares in the company at an attractive offer price.

c. Rewarding managers with share options. In a share option scheme, selected employees are given a number of share options, each of which gives the right (after a certain date) to subscribe for shares in the company at a fixed price. The value of an option will increase if the company is successful and its share price goes up.

Such measures might encourage management in the adoption of "creative accounting" methods which will distort the reported performance of the company in the service of the managers' own ends. However, creative accounting methods such as off-balance sheet finance present a temptation to management at all times given that they allow a more favorable picture of the state of the company to be presented than otherwise, to shareholders, potential investors, potential lenders and others. An alternative approach is to attempt to monitor managers' behavior, for example, by establishing 'Management audit' procedures, to introduce additional reporting requirements, or to seek assurance from managers that shareholders' interests will be foremost in their priorities.

Example: ESOPs and MSOPs from Swiggy to Achieve Goal Congruence

To achieve goal congruence, Foodtech major Swiggy allotted equity shares under its Employee Stock Ownership Plan (ESOP) and Management Stock Ownership Plan (MSOP) to its employees and top executives respectively. According to Swiggy's regulatory filings, it has allotted ESOP equity shares worth ₹132.5 crore to 180 employees. Swiggy was valued at $5.6 billion during its latest fundraise of $1.25 billion in July 2021 and the company is gearing up for another round that may push its valuation closer to $10 billion. The company officials are of the view that this will prevent lateral shift from the organization as Mr Sunder, COO had moved on from Swiggy in June 2021 and joined edtech startup Cuemath as CEO.

Source: https://entrackr.com/2021/10/exclusive-swiggy-allots-stock-options-worth-rs-329-cr-to-its-employees-and-top-executives/ dated 27th October 2021. Accessed on 4th July, 2022

External Constraints and Financial Strategy

The external constraints and financial strategy can be discussed as follows-

Economic Influences

Aggregate Demand and Inflation

A growth in aggregate demand can have either or both of the following consequences:

a. An increased production by the firms.

b. Inability on the part of the firms to produce more to meet the demand, due to limitations, resulting in the increase in the price.

Inflation in the economy has effects on the following economic variables:

a. Costs of production and selling prices

b. Interest rates

c. Foreign exchange rate.

d. Demand in the economy (high rates of inflation seem to put a brake on real economic growth)

Interest Rates

Interest rates exert the following economic influences:

a. Interest rates in a country influence the foreign exchange value of the country's currency.

b. Interest rates act as a guide to the return that a company's shareholders might want, and changes in market interest rates will affect share prices.

A positive real rate of interest enhances an investor's real wealth to the income he earns from his investments. However, when interest rates go up or down,

perhaps due to a rise or fall in the rate of inflation, there will also be a potential capital loss or gain for the investor. In other words, the market value of interest-bearing securities will alter. Market values will fall when interest rates go up and vice versa.

Interest Rates and Share Prices

When interest rates change, the return expected by investors from shares also tends to change. For example, if interest rates fall from 14 percent to 12 percent on government securities, and from 15 percent to 13 percent on company debentures, the return expected from shares (dividends and capital growth) would also fall. This is because shares and debt are alternative ways of investing money. If interest rates fall, shares become more attractive to buy. As demand for shares increases, their prices too rise, and so the dividend return gained from them falls in percentage terms.

Interest Rates are Important for Financial Decisions by Companies

Interest rate is important for financial decisions by companies. The incidence of the interest rates can have the following effects:

a. When interest rates are low, it might be beneficial:
   i. To borrow more, preferably at a fixed rate of interest, and so increase the company's gearing,
   ii. To borrow for long periods rather than for short periods, and
   iii. To pay back loans which incur a high interest rate, if it is within the company's power to do so, and take out new loans at a lower interest rate.

b. When interest rates are higher:
   i. A company might decide to reduce the amount of its debt finance, and to substitute equity finance, such as retained earnings,
   ii. A company which has a large surplus of cash and liquid funds to invest might switch some of its short-term investments out of equities and into interest bearing securities, and
   iii. A company might opt to raise new finance by borrowing short-term funds and debt at a variable interest rate (for example, on overdraft) rather than long-term funds at fixed rates of interest, in the hope that interest rates will soon come down again.

Interest Rates and New Capital Investments

When interest rates go up, consequently the cost of finance to a company also goes up; the minimum return that a company will require on its own new capital investments also goes up. A company's management is supposed to give close consideration, when interest rates are high, keeping investments in assets, particularly unwanted or inefficient fixed assets, stocks and debtors, down to a

minimum. This activity of the company is done in order to reduce the company's need to borrow. At the same time, the management also needs to bear in mind the deflationary effect of high interest rates that deters spending by raising the cost of borrowing.

Activity 1.1:

a. What is meant by goal congruence?

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b. When a government issues 5 year gilts of ₹ 1,000 at a coupon interest rate of 10 percent and the market rate of interest is 8 percent, what will be the market value of the securities?

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1.7 Financial Planning and Strategic Planning

Let us understand financial planning and strategic planning as below.

Financial Planning

The management function of planning requires the development, definition and evaluation of the following:

a. The organization's objectives.

b. Alternative strategies for achievement of these objectives.

The objectives of business activity are invariably concerned with money, as the universal measure of the ability to command resources. Thus, financial awareness probes into all business activities. Nevertheless, finance cannot be managed in isolation from other functions of the business and, therefore, financial planning will be undertaken within the framework of a plan for the whole organization, i.e., a corporate plan.

The Strategic Planning Approach to Develop a Business Plan

Strategic planning is a systemic approach to decisions about the basic directions and purposes of a business and the development of plans to achieve that purpose. It may involve interpretation of policy, applying strategies, establishing corporate

objectives and generally ensuring that a company develops in a planned, rather than haphazard, fashion.

The period to be covered by a strategic plan will vary between different types of business. In general terms, the minimum period for a long-term plan will be that necessary for the implementation of decisions on matters such as:

a. Development of new facilities (building, plant or equipment and the materials and manpower necessary to utilize them);
b. Development of new products or services; and
c. Entry into a new field of marketing for existing products.

For control purposes, a strategic business plan may be broken down into the shorter term plans normally represented by annual budgets. Thus it can be said that the process of strategic planning falls into the following six steps:

Step	Action
1.	Business review and assessment (including appraisal of corporate strengths and weaknesses)
2	Establishment of objectives
3	Choice of strategies and their evaluation
4	Detailed evaluation of the strategic plan (sometimes referred to as a strategic budget)
5	Establishment of annual or other short-term budgets
6	Implementing the plan and monitoring results.

Example: Tata Motors Strategic Plan for EV Vehicles

Development of new products and services needs strategic planning supported by finances and is a long-term plan. Tata Motors company established itself as the frontrunner in the EV space when it planned to introduce EV version of its cars three years ago with R & D support from Jaguar Land Rover and the first EV version of its successful model Nexon has been released on 29th April, 2022 and the company has plans to launch around ten new EVs over the next five years and planned to invest ₹15,000 crore on the design and development. Further the company is going to work on nearly 10 products with different kinds of body styles, price, driving range options and the new products will be released in 2025 as per the company's strategic planning and R & D wing.

Source: https://auto.economictimes.indiatimes.com/news/passenger-vehicle/cars/how-tata-motors-wins-the-ev-game-in-spite-of-mahindras-decade-old-head-start/84408734 dated 14th July 2021. Accessed on 5th July, 2022

1.8 The Relationship between Short-term and Long-term Financial Planning

The process of financial planning must begin at the strategic level, where the corporate strengths and weaknesses are reviewed and long-term objectives are identified. It is to be kept in mind that business review should enable a forecast to be made of future changes in sales, profitability and capital employed. When this forecast is compared with the results desired by the corporate objectives, a gap may be identified which must be made good by developing new strategies. Senior management must negotiate with middle management, until a single strategic plan for the whole company is agreed. From this strategic plan, tactical plans must be drawn up (e.g., pricing policies, personnel requirements, and production methods) and a medium-term plan established. This medium-term plan can be broken down into a series of short-term financial plans at a later point of time.

Potential Conflicts between Short-term and Long-term Objectives

Companies are often accused of favoring short-term profitability at the expense of long-term prosperity. For example, an investment in the latest technology in production machinery might be postponed because of fear of increasing the depreciation charge, although longer-term profitability will be improved by the investment.

Planning Systems

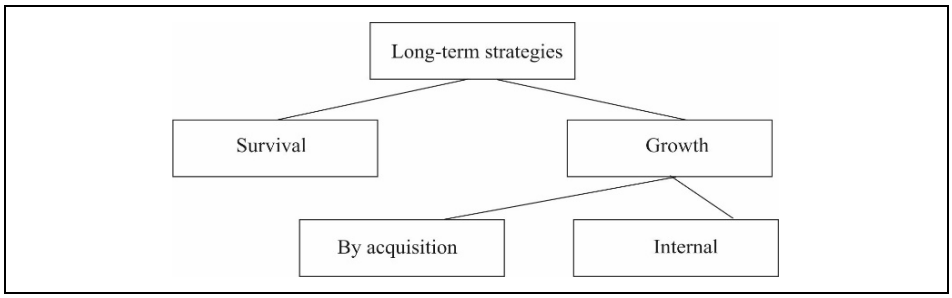
Let us now define two possible types of planning system. In a top-down system senior management announces instructions which filter their way down through the organization structure. In a bottom-up system information gathered from the lower levels of the business is consolidated until a summary is produced for the board. An ideal planning system contains elements of both systems, with decisions passing up and down the organization structure. Certainly all managers must be involved in the planning of their own activities, or else they feel no responsibility to meet the targets given to them. Equally long-term strategic decisions are ultimately the responsibility of the senior management.

Successful conglomerate companies delegate as much responsibility as possible to their subsidiaries, while the main board ensures that the group remains focused on a particular direction. The balance between control and autonomy of a conglomerate's subsidiaries is another area for academic research in recent years.

Types of Long-term Strategy

The different types of long-term strategies can be better understood with the help of the following flow chart:

Figure 1.1: Types of Long-term Strategies



Example: Acquisition Strategy of Reliance Retail

One of the long-term strategies of businesses is growth through acquisition and Reliance Retail has acquired over 25 companies and partnerships to consolidate its omni-channel retailing over the last three years. It has added many products, services and network of physical stores to its brand portfolio. It includes physical stores, B2B with Kirana stores and e-commerce of JioMart and Ajio. The list of acquisitions includes Hamleys, Justdial, Milkbasket, Zivame, Portico, Netmeds, Urban Ladder, Dunzo, Shri Kannan Departmental Store, Jaisuryas and Kalanikethan. It has partnered with 7-Eleven, the iconic global retail chain, to start its operations in India. The retail group will continue acquiring businesses to expand offerings and experience to customers, sharpen omni-channel capabilities and drive operating efficiencies as per the Chairman Mr Mukesh Ambani.

Source: https://www.fortuneindia.com/enterprise/reliance-retail-acquisition-spree-aims-to-make-it-walmart-amazon/107308 dated 3rd March 2022. Accessed on 5th July, 2022

Survival Strategies

Survival strategies can be classified into growth and non-growth strategies.

Non-growth Strategies

A non-growth strategy refers to that strategy where there is no growth in earnings. This does not necessarily mean no turnover. A company might pursue a non-growth strategy if it saw its non-economic objectives as more important than its economic objectives.

The primary reasons for adopting a non-growth strategy may include:

- Pressure from public opinion;
- Maintain an acceptable quality of life;
- Lack of enough additional staff with sufficient expertize and loyalty;
- Enable the owner-manager to retain personal control over operations; and
- Diseconomies of scale of the particular production set-up.

In certain cases, there could even be negative growth, by paying out dividends larger than current earnings, so that shareholders are effectively receiving a

refund of their capital investment, and there is a net fall in assets employed. A negative growth strategy can be adopted in pursuit of an objective to increase the percentage return to the shareholders – if the company pulls out of the least profitable areas of its operations first, it will increase its overall return on investment, although the total investment will be less. The negative growth strategy consists of an orderly, planned withdrawal from less profitable areas, and while the shareholder's dividend may eventually decline, his return can rise since the capital invested also falls. If the company simply runs down, his return will also fall.

Corrective Strategies

A non-growth strategy certainly does not mean that the company can afford to be complacent. A considerable amount of management time should be devoted to consider the actions needed to correct its overall strategic structure to achieve the optimum. This involves seeking a balance between different areas of operations and also seeking the optimum organization structure for efficient operation.

Thus, although there is no overall growth (or negative growth occurs) the company will shift its product market position, employ its resources in different fields and continue to search for new opportunities. In particular, the company will aim to correct any weaknesses which it has discovered during its appraisal. For this reason, the term corrective strategy is also used. A non-growth strategy is bound to be a corrective strategy, but a corrective strategy can also be used in conjunction with, or as one component of, a growth strategy.

Risk-reducing Contingency Strategies

A company faces risk because of its lack of knowledge of the future. The extent of the risk it faces can be revealed by the use of performance-risk gap analysis, where forecasts of the outcome in n years' time takes into account not only the likely return but also the risk involved. While on the subject of risk, it should be remembered that although it is desirable to reduce risk, risk is inevitably involved in any business. In fact, there are different ways of looking at risk:

- Risk which is inevitable in the nature of the business; this risk should be minimized.
- Risk which an organization can afford to take. In general, high return involves higher risk and a company which is in a strong position might be prepared to take a higher risk in the hope of achieving a high return.
- Risk which an organization cannot afford to take. A company cannot afford to commit penny (and perhaps an overdraft as well) to a risky project. In the event of failure, it would be left in an extremely vulnerable position and could even face winding up.

- Risk which an organization cannot afford not to take. Sometimes a company is forced to take a risk because it knows that its competitors are going to act and if it does not follow it could be seriously left behind.

Growth Strategies

Growth strategies involve:

Search for Opportunities

Growth in the size of an organization can be measured in many ways: profit, turnover, earnings share, manpower, etc. but the real aim of a growth strategy is growth in profits. The pursuit of increased turnover is not an end in itself but is only worthwhile if it leads to higher profits. Organization had decided that it does need growth in order to achieve its economic objectives. Its search for new opportunities must be particularly active.

The Relationship of Investment Decisions to Long-term Planning

Investment decisions are an important part of the long-term planning process, covering internal investment decisions (committing funds to new projects within the existing business and withdrawing from such projects if they turn out to be unsatisfactory), external investment decisions (merging with or acquiring new companies), and divestment decisions (selling part of the business).

1.9 Summary

- The objective of decision-making in corporate finance is to maximize firm value/stock prices.
- The company also needs to be socially desirable by fulfilling its non-financial objectives – like welfare of employees, management, customers, and suppliers and to the society at large.
- There is a conflict of interest between stockholders and managers. The important agency relationship exists between the stockholders and managers, between managers and debt holders and between managers, stockholders and debt holders in times of financial distress.
- An agency problem in this context refers to conflict between the principle and the agent. For instance, managers might fix for themselves higher salary, obtain large stock option, at the expense of the stockholders.
- An agency costs refers to the monitoring costs incurred by the principles over their agents in making them act in the interests of the former.
- Financial planning refers to the managerial function of developing, defining and evaluating the organizational objective and devising strategies in fulfilling these objectives.

- The long-term objectives of the company might include – survival or growth of the firm. The company might need to balance the long-term profitability with the short-term gains.

1.10 Glossary

Agency theory explains the relationships between the various interested parties in the firm. For example, the management, shareholders etc.

Investment refers to deploying money in some return generating asset. The returns may be in the form of regular income or capital appreciation. Investment may be for a long period or for a short period, depending on the constraints and objectives of the investor.

Return is the gain or loss from an investment over a particular period. Returns may be in the form of income or capital appreciation. Generally, risk and return go hand-in-hand, i.e., more risk gives more return and low risk gives low return.

Strategic financial management is the identification of the possible strategies capable of maximizing an organization's net present value, the allocation of scarce capital resources among the competing opportunities and the implementation and monitoring of the chosen strategy, so as to achieve stated objectives.

Strategy is a plan of action resulting or intended to accomplish a specific goal.

1.11 Suggested Readings / Reference Material

1. Richard Brealey and Stewart Myers and Franklin Allen and Alex Edmans (2023). Principles of Corporate Finance. 14th Edition, McGraw Hill India
2. Stephen A. Ross, Randolph Westerfield (Author), & Jordon (2018). Fundamentals of Corporate Finance. 12th edition, McGraw Hill College
3. Prasanna Chandra (2020). Strategic Financial Management: Managing for value creation. 2nd edition, McGraw Hill
4. Hubbard & Obrien (2022). Money, Banking and Financial System. 4th edition, Pearson Education
5. Kalyani Karna (2019). Strategic Financial Management. 1st edition. Corporate Plus Publications Private Limited
6. Edward I Altman (2019). Corporate Financial Distress, Restructuring and Bankruptcy. 4th edition, Wiley
7. Rick Mann & David Tarrant (2020). Strategic Finance for Strategic Leaders: The First Five Tools. Clarion strategy publishing
8. Sheeba Kapil (2021). Financial Valuation and Modelling. Wiley

1.12 Suggested Answers

Self-Assessment Questions – 1

a. The non-financial objectives of a firm are as follows:

   i. General welfare of the employees, which includes providing the employees with good wage, salaries, comfortable and safe working conditions, good training and career developments and good pensions.

   ii. Welfare of the management which includes providing them with the better salaries and perquisites though it will be at the cost of the company's expenditure.

   iii. Welfare of the society as a whole. For example, the oil companies confront with the problem of protecting the environment and preserving the earth's dwindling energy resources.

   iv. Fulfillment of responsibilities towards customers and suppliers.

   v. Leadership in research and development.

b. The actions of stakeholder groups in pursuit of their various goals can exert influence on strategy. The greater the power of the stakeholder, the greater the influence will be. Each stakeholder group possesses different expectations about what it wants, and the expectations of the various groups' conflicts with each other. Each group, however, tends to influence strategic decision-making. The relationship between management and shareholders is sometimes referred to as an agency relationship, in which the managers act as agents for the shareholders, using delegated powers to run the affairs of the company in the shareholders' best interests.

Self-Assessment Questions – 2

a. Goal congruence is the term which describes the situation when the goals of different interest groups coincide. A way of helping to achieve goal congruence between shareholders and managers is by the introduction of carefully designed remuneration packages for managers which would motivate managers to take decisions which were consistent with the objectives of the shareholders.

b. If the coupon interest rate is 10% and nominal interest rate is 8 percent, then the market value of gilts will be:

   ₹ 1,000 PVIF (8%, 5) + 100 PVIFA (8%, 5) = ₹1080.

Check Your Progress - 1

1. Which of the following is not included in strategic management?

   a. Providing and organizing the resources required.

b. Analyzing company's options by matching its resources with external environment.

c. Identifying the most desirable strategy.

d. Setting long-term objectives.

e. Developing a company profit that reflects its internal conditions and capabilities.

2. What prepares the organization and its individuals to define and achieve success by facilitating self-development?

   a. Strategic planning.

   b. Strategic decision making.

   c. Management development.

   d. Training.

   e. Strategic analysis.

3. Which of the following processes, puts strategies and policies into action through program budgets and procedures?

   a. Environmental approach.

   b. Strategic formulation.

   c. Strategic implementation.

   d. Evaluation and control.

   e. Strategy planning.

1.13 Answers to Check Your Progress Questions

1. (e) Developing a company profit that reflects its internal conditions and capabilities.

Developing a company profit that reflects its internal conditions and capabilities is not included in strategic management.

2. (a) Strategic planning

Strategic planning prepares the organization and its individuals to define and achieve success by facilitating self-development

3. (c) Strategic implementation.

Strategic implementation puts strategies and policies into action through program budgets and procedures.

Unit 2

Capital Structure

Structure

"And make sure that capital structure we have in place is the right capital structure. I think that's the reason that we've been successful."

- Henry Kravis

2.1 Introduction

An optimal capital structure of a company can be properly defined as that security mix, which minimizes the firm's cost of capital and maximizes its values. The capital structure should be balanced with adequate equity cushion to absorb the shocks of business cycle and afford flexibility. As a finance manager, you can achieve this by identifying the factors affecting capital structure, both internal and

external, keeping the capital cost at the minimum, level assist financing and reduce the hazards of insolvency.

In the previous unit, we learnt about strategic financial management. This unit explains the theories of capital structure, various factors affecting capital structure and focuses on the capital structure decisions in both perfect markets as well as imperfect markets. This unit focuses on capital structure theories, cost of capital, tax shield, and strategic determinants of the capital structure.

2.2 Objectives

After going through the unit, you should be able to:

- State the relationship between leverage and rate of return on equity
- Define operational structure
- Understand the theories of capital structure
- Build the relationship between corporate taxes and firm distress
- Recognize the role of interest tax shield and bankruptcy costs on capital structure
- Develop the long-term performance plan for a company

2.3 The Effect of Leverage on EPS

An appropriate (optimal) capital structure is an important decision for any business organization. The importance of the decision lies not only because of the need to maximize returns to various organizational constituencies, but also because of the impact such a decision would be having on the organization's ability to deal with its competitive environment.

The theory of capital structure analyzes the impact of the financing mix on the valuation of the firm. The theory also attempts to discover whether there exists an optimal capital structure for a firm. This is one of the most controversial topics in the theory of finance. There are broadly two schools of thought. One school believes that the composition of the financing mix does not affect the cost of capital. This school does not believe in the existence of an optimal capital structure. Hence, the capital structure has no relevance in the valuation of the firm. The proponents of the other school believe that the cost of capital is determined by the composition of the capital structure. The application of leverage results in a change in the cost of capital. They try to determine the optimal capital structure, at which level the overall cost of capital is minimal. They conclude that it is the capital structure which determines the valuation of the firm.

The most discussed proposition on capital structure calls forth the Miller and Modigliani proposition that was originally developed by Modigliani and Miller

(1958). Basically, it speaks about an optimal capital structure which balances the risk of bankruptcy with the tax savings of debt. Once established, this capital structure should provide greater returns to stockholders than they would receive from an all-equity firm. In this context, the unit focuses on the capital structure decisions in both perfect markets as well as imperfect markets.

Example: Tata Steel Reduced Debt to Improve EPS

In the AGB meeting of Tata Steel, the Chairman Mr N Chandrasekaran has informed the shareholders that the company in order to strengthen the financial position, reduced the net debt by ₹ 29,390 crore. He added that the consolidated net debt of the company as on 31.03.21 was at ₹ 75,389 crore, down 28 per cent compared to the previous year. The company aimed to reduce debt further to improve its profitability, ensure higher EPS to shareholders and maintain optimal capital structure. The ensuing year also will see much better performance as per the Chairman of the group.

Source: https://www.thehindubusinessline.com/companies/tata-steel-to-cut-debt-further-this-fiscal/article35064004.ece dated 30th June 2021. Accessed on 5th July, 2022

Optimal Financial Leverage

The goal of the firm is to maximize its value. For a given invested capital and a given number of shares outstanding, this goal can also be thought of from the angle of maximizing the firm's stock price. Suppose a particular firm raises ₹1,000 by issuing 100 shares of stock at ₹10 per share. In this case, the firm's market value will be ₹1,000. Suppose, at the same time, the firm finances its operations by issuing ₹500 of debt and 50 shares of stock. If the market prefers this financial mix to all-equity, the firm may be able to sell the stock for a higher price, say, ₹11 per share. In this case the firm's value will be:

[₹500 debt + (50 shares x ₹11)] = ₹1,050.

This example illustrates that as the value of the firm increases, so does the stock price. Therefore, when the value of the firm is maximized, it can be said that the stock price is also maximized. The level of financial leverage that maximizes the firm's market value is the optimal financial leverage or the optimal capital structure. Let us consider the following illustration that shows how a firm's optimal capital structure affects its value and its stock price.

Illustration 1

Investors Corporation needs ₹100 million for investment. If the firm uses equity only, investors will issue 10 million shares at ₹10 a share. Alternatively, if the firm issues a combination of debt and equity, it will reduce the number of shares issued proportionately to the amount of debt issued. For example, if investors

employ `50 million of debt, it will reduce the number of shares issued by 50% to 5 million. Investors estimate that its shares will be sold at the following prices:

Debt Issue (₹ million)	Number of Shares Issued (million)	Stock Price Estimate (₹)
20	8	11
50	5	12
70	3	9

What is Investors' optimal capital structure? What is the firm's corresponding value? What is the corresponding stock price?

Solution

If the firm raises ₹20 million of debt, investors will issue 8 million shares at ₹11. The firm's value will be

₹ 20 million + (8 million shares x ₹ 11) = ₹ 108 million

For other levels of debt, we have

₹ 50 million + (5 million shares x ₹ 12) = ₹ 110 million, and

₹ 70 million + (3 million shares x ₹ 9) = ₹ 97 million

Thus, the firm's optimal policy is to issue ₹50 million of debt. With this capital structure, the firm's value will be ₹110 million, and its stock price will be ₹12. In analyzing the optimal capital structure, we hold investment in physical assets constant and focus on how the financing mix affects the firm's value. In the above problem, the firm obtains more cash (₹110 million) than it needs for the investment (₹100 million). To keep the investment and the NOI constant, the firm could issue fewer shares or, alternatively, distribute the extra ₹10 million as dividends and thereby maintain a debt/equity ratio of 1 (₹50 million debt/₹50 million equity = 1).

Leverage and Earnings per Share: Break Even Analysis

Suppose an all-equity firm (which has already decided on the projects it is going to undertake) issues "n" shares and the firm's value is denoted as V. Because it has already determined capital expenditure, if the firm decides to employ leverage by issuing debt, denoted as B, it should issue less equity. Otherwise, it will have more cash than it needs for its capital expenditure. As it is assumed that leverage has no effect on the stock price, a levered firm's number of shares should be reduced to n (E/V), where E/V is the proportion of equity when leverage is applied.

The EPS of an unlevered firm (EPS^U) is

$$EPS^U = \frac{NOI}{n}$$

The EPS of the levered firm (EPS^L) is

$$EPS^L = \frac{NOI - rB}{N_1} = \frac{NOI - rB}{n(E/V)}$$

This can be rewritten as:

$$EPS^L = \frac{NOI}{n(E/V)} - \frac{rB}{n(E/V)}$$

$$EPS^L = a + b\ NOI \qquad \ldots (1)$$

Where,

$$a = \frac{-rB}{n(E/V)} \text{ and } b = \frac{V}{nE}$$

A linear relationship exists between the EPS of the levered firm (EPS^L) and its NOI. The break-even point condition can be written as:

$$EPS^L = \frac{NOI - rB}{n(E/V)}$$

Multiplying by nE/V, we get

$NOI - rB = NOI\ (E/V)$ [Since $EPS^L = EPS^L$, due to the break-even point]

or

$NOI\ [1 - (E/V)] = rB$

This can be written as:

$$NOI\left[\frac{V-E}{V}\right] = rB$$

However, V – E = B.

Therefore, NOI x B = rVB

Dividing by B, we find that the BEP is the point where

$$NOI = rV \qquad \ldots (2)$$

The above analysis states that if the firm's percentage earnings, as measured by NOI/V, exactly equal the interest paid on its bonds, then no matter how much leverage the firm employs, the EPS will be unaffected.

2.4 Theories of Capital Structure

The theory of capital structure analyzes the impact of the financing mix on the valuation of the firm. The theory also attempts to discover whether there exists an optimal capital structure for a firm. This is one of the most controversial topics in the theory of finance. There are broadly two schools of thought. One school believes that the composition of the financing mix does not affect the cost of capital. This school does not believe in the existence of an optimal capital structure. Hence, the capital structure has no relevance in the valuation of the firm. The proponents of the other school believe that the cost of capital is

determined by the composition of the capital structure. The application of leverage results in a change in the cost of capital. They try to determine the optimal capital structure, at which level the overall cost of capital is minimal. They conclude that it is the capital structure which determines the valuation of the firm.

Assumptions

A capital market equilibrium approach is used to identify and isolate factors other than leverage. The theories of capital structure are based on the following premises:

i. There are no corporate or personal taxes. Thus the impact of tax shields associated with debt is abstracted.

ii. There are no bankruptcy costs. The assets of a bankrupt company can be sold at their economic value without incurring any liquidating and legal expenses. This eliminates any bias in favor of an unlevered firm due to existence of bankruptcy costs.

iii. The firm is allowed to issue and repurchase any amount of debt or equity. These transactions can be executed instantaneously without any time lag. The securities are infinitely divisible.

iv. The composition of the capital structure can be changed without any transaction costs like issue expenses and underpricing.

v. The firm consistently follows the policy of 100% dividend pay-out. Thus the possible impact of dividend policy on the valuation of the firm is eliminated.

vi. All the investors in the market have homogenous expectations of the expected future earnings of all the firms. The expected value of the subjective probability distributions of the anticipated future earnings (operating income) is identical to all investors.

vii. The operating earnings of the firm is expected to remain constant for all future periods. Hence there is neither any growth nor decline in the expected future earnings.

Given the above assumptions, the cost of each component of the capital structure can be computed as follows:

$$k_d = \frac{I}{B}$$

Where, k_d Cost of debt

I - Annual interest expense

B - Market value of the outstanding debt

$$k_e = \frac{E}{S}$$

Where, k_e - Cost of equity;

E - Earnings available for distribution to equity shareholders of the firm; and

S - Market value of the equity

The overall capitalization rate of the firm is its weighted average cost of capital. It can be obtained by multiplying the cost of each component in the capital structure by its respective weight.

$$k_o = k_d \frac{B}{B+S} + k_e \frac{S}{B+S}$$

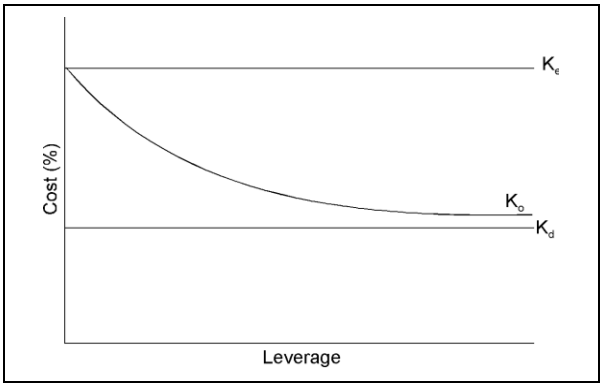
Where, k_0 is the weighted average cost of capital.

Net Income Approach

This approach postulates that the cost of debt and equity of a firm remains constant. Hence, the overall capitalization rate can be changed by varying the financing mix in the capital structure. Hence, the valuation of the firm is a function of its capital structure. The valuation of the firm can be increased by the application of leverage, provided the cost of equity is greater than the cost of debt.

The same is graphically represented as follows:

Figure 2.1: Net Income Approach



Source: ICFAI Research Centre

It can be observed from the Figure 2.1 that as the leverage increases, the cost of capital (k_o) declines because of the substitution of high cost equity with low cost debt.

Illustration 2

There are three firms Alpha, Beta and Gamma which are identical in all respects, except for their capital structure.

Particulars	Alpha	Beta	Gamma
Operating Income	100	100	100
Interest Expenses	0	25	50
Net Income	100	75	50
Cost of Equity (k_e)	10%	10%	10%
Cost of Debt (k_d)	-NA-	5%	5%
Market Value of Equity	1,000	750	500
Market Value of Debt	–	500	1,000
Market Value of the Firm	1,000	1,250	1,500
Cost of Capital (k_o)	10%	8%	6.67%

It can be seen from the above illustration that the cost of capital is highest for Alpha and correspondingly its valuation is the lowest. Beta employs moderate amount of leverage and is thus able to reduce its cost of capital. Gamma employs high level of leverage and consequently its cost of capital is the lowest. Hence, it has the highest market valuation.

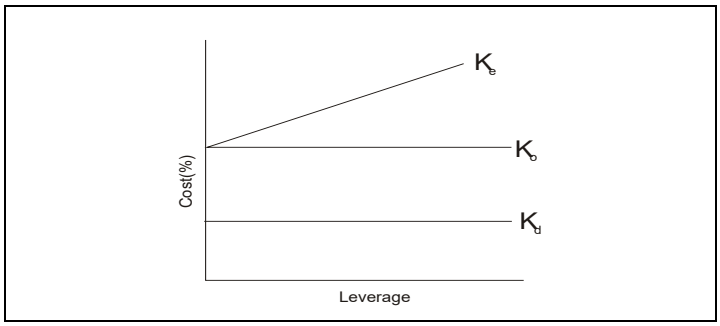
Net Operating Income Approach

This theory is built on the premise that a firm is valued by capitalizing its net operating income at an appropriate discount rate. The value of the firm remains constant irrespective of its degree of leverage. The market value of the equity is obtained by deducting the market value of the debt from the total value of the firm. The breakup of the firm's value between the value of debt and equity is a matter of distribution. It has no impact on the firm valuation.

The theory assumes that each firm has a predetermined capitalization rate. The cost of debt is also constant at all levels of leverage. In case a firm increases the leverage by employing more debt, it becomes more risky. The advantage of using 'cheaper' debt financing will be offset by higher cost of equity due to its 'increased riskiness'.

The same is graphically represented as follows:

Figure 2.2: Net Operating Income Approach



It can be observed from Figure 2.2 that the cost of capital (k_o) remains constant, irrespective of the level of leverage.

Illustration 3

There are three firms Delta, Sigma and Omega which are identical in all respects, except for their capital structure.

It can be seen that all the three firms generate identical operating incomes and share the same capitalization rate (10%). Hence, the market value of all the firms is the same. Delta being an all equity firm, the cost of equity is equal to the cost of capital. As Sigma employs debt in its capital structure, it is more riskier than Alpha. Hence, the shareholders of Sigma require a higher return on 15%. Omega has very high reliance on debt which constitutes 80% of its total capital employed. Consequently, the cost of equity for Omega is much higher at 30%.

Particulars	Delta	Sigma	Omega
Operating Income	200	200	200
Interest Expenses	0	50	80
Net Income	200	150	120
Cost of Capital (k_o)	10%	10%	10%
Cost of Debt (k_d)	NA	5%	5%
Market Value of the Firm	2000	2000	2000
Market Value of Debt	–	1000	1600
Market Value of Equity	2000	1000	400
Cost of Equity (k_e)	10%	15%	30%

Traditional Approach

The traditional approach contends that there is an optimal capital structure for every firm. The firm can attain optimality in capital structure through judicious use of leverage. The theory postulates that the cost of debt (k_d) remains constant up to a certain degree of leverage and rises gradually thereafter. The cost of equity (k_e) rises at a slow pace up to a certain degree of leverage and increases rapidly thereafter. The cost of capital (k_o) initially declines due to moderate application of leverage. After a certain degree of leverage, the increase in the cost of equity is more than the benefits obtained due to cheaper debt. At this point the cost of capital begins to rise. The rise in cost of capital becomes much sharper, once the cost of debt begins to rise.

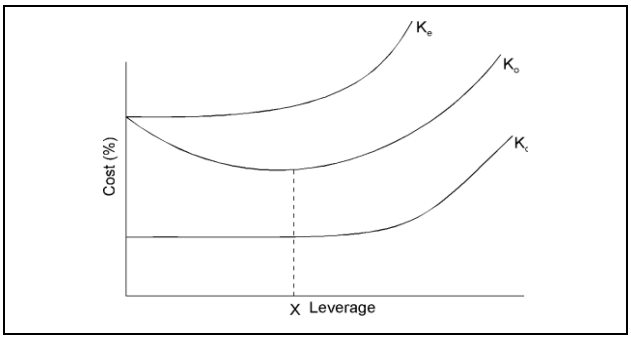
Example: Reliance Power Converts Debt to Equity to Reduce the Cost of Capital

As per the traditional approach, the rise in cost of capital becomes much sharper, once the cost of debt begins to rise. The board of Reliance Power, headed by Anil Ambani, has approved to issue shares and warrants worth Rs 1,325 crore to group company Reliance Infrastructure to convert the outstanding loan into equity. In this process, the Reliance Power standalone debt will be reduced by Rs 1,325 crore and along with planned debt reduction in subsidiaries and thereby the consolidated debt will reduce by Rs 3200 crore in FY22. This, in turn, will reduce the cost of capital as the interest paid to service the debt is increasing as per the company officials. Post conversion of debt to equity, the company's consolidated debt will be around Rs 25,000 crore.

Source: https://economictimes.indiatimes.com/markets/stocks/news/reliance-power-to-convert-reliance-infras-rs-1325-cr-debt-into-equity/articleshow/83502893.cms?from=mdr dated 14th June 2021. Accessed on 5th July, 2022

The same is graphically represented as follows:

Figure 2.3: Traditional Approach



Source: ICFAI Research Center

It can be observed from Figure 2.3 that at X, k_o is the lowest. Hence, the leverage level at X is the optimal capital structure.

The theory explains that the cost of capital is dependent on the capital structure of the firm. The optimal capital structure is the one which minimizes the cost of capital. The main drawback of this theory is that it is not precisely quantifiable unlike the net income approach.

2.5 Modigliani and Miller (M&M) Approach

Prof. Franco Modigliani and Prof. Merton Miller propound that the composition of the capital structure is an irrelevant factor in the market valuation of the firm. They have strongly attacked the traditional position that a firm has an optimal capital structure. In their famous article 'The Cost of Capital, Corporation Finance

and the Theory of Investment', they have amplified the net operating income approach by adding a behavioral dimension to it. They have been awarded the Nobel Prize (Franco Modigliani in 1985 and Merton Miller in 1990) for their widely acclaimed contribution to theory of finance.

Modigliani and Miller hypothesis claims that in a perfect market, capital structure does not matter and is irrelevant. M&M theory claims that in a perfect market the stock prices of any two similar firms, one levered and the other unlevered, will be equal. If differences in prices are observed in the market, arbitragers will restore the equilibrium.

Assumptions

The MM position is based on the following assumptions:

1. The fundamental building block for MM hypothesis is that capital markets are perfect. There is a free flow of information in the market which can be readily accessed by any investor. There are no costs involved in obtaining the information.
2. The securities issued and traded in the market are infinitely divisible.
3. There are no transaction costs like flotation costs, underpricing of primary issues, brokerage, transfer taxes, etc.
4. All the participants in the market are rational, i.e. they strive to maximize their profits or minimize their losses.
5. All investors have homogenous expectations about the future earnings of all the firms in the market.
6. Firms can be classified into 'equivalent return' classes. The firms in each have exactly the same profile of business risk. Hence the firms can be taken as perfect substitutes for one another. All the firms within a specific class have a common capitalization rate.
7. There are no corporate taxes. This assumption was later dropped.

MM Proposition I

The market valuation of a firm is independent of its capital structure and is determined by capitalizing its expected return at the rate appropriate to its class. In other words, the value of the firm is computed by discounting the future stream of operating income at the capitalization rate for that specific class. This implies that the cost of capital for a firm is equal to the capitalization rate of a pure equity stream of its class. Thus the cost of capital of a firm is independent of its capital structure.

The value of the levered firm, V^L, must be equal to the value of the unlevered firm, V^U.

The firm's market value and average cost of capital are completely independent of the capital structure that the firm chooses. That is,

$V^L = V^U$

Where,

V^U is the value of an unlevered or all equity firm, and

V^L is the value of a levered firm (a firm which has some debt in its capital structure).

MM Proposition II

The expected yield on common stock (cost of equity) is equal to the sum of the capitalization rate for a pure equity stream of that specific class and the premium based on the financial risk. The risk premium is a function of the leverage applied (debt-equity ratio) and the spread between the capitalization rate (cost of capital) and the cost of debt.

$$k_e = k_o + (k_o - k_d)\ \frac{D}{E}$$

The implication of this proposition is that the cost of equity will be equal to the cost of capital in an all equity firm. As the company starts introducing cheaper debt in its capital structure to reduce the cost of capital, the financial risk of the firm increases. Due to increase in the financial risk, the equity holders demand a higher return which pushes up the cost of equity. Thus the benefit obtained by the use of cheaper debt is exactly offset due to the rise in the cost of equity. Thus the cost of capital remains a constant irrespective of the financing mix.

Example: Market Valuation of Top 8 Indian Companies

The market valuation of a firm is independent of its capital structure. Eight of the top-ten most valued companies have added ₹ 2,50,005.88 crore in their market valuation with Reliance Industries and Tata Consultancy Services on the top. The valuation of Reliance Industries Limited (RIL) increased by ₹ 46,380.16 crore to reach ₹ 16,47,762.23 crore while that of Tata Consultancy Services (TCS) by ₹ 43,648.81 crore taking its valuation to Rs 14,25,928.82 crore. Similarly, the market value of Bajaj Finance increased by Rs 41,273.78 crore to Rs 4,62,395.52 crore and HDFC Bank by Rs 39,129.34 crore to Rs 8,59,293.61 crore. The investors value the firm on various parameters and one such is the expectation on the future stream of operating income; which is reflected in the higher market valuation of these companies.

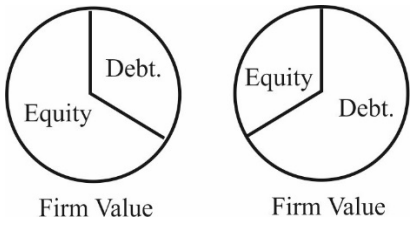
Source: https://economictimes.indiatimes.com/markets/stocks/news/mcap-of-eight-of-top-1o-most-valued-firms-jumps-by-over-rs-2-50-lakh-cr/articleshow/88790647.cms?from=mdr dated 9th January 2022. Accessed on 5th July, 2022

MM Proposition III

The investment and financing decisions of a firm are independent of each other. A firm should exploit an investment opportunity, if and only if, the rate of return on the investment is greater than the cost of capital. Thus the cut-off point for investment by the firm should in all cases be the capitalization rate for that class.

Regardless of the financing mix, the capitalization rate will be equal to the average cost of capital. This is because as per Proposition I, the average cost of capital is equal to the capitalization rate which is a constant for a given firm. As the average cost of capital remains a constant, the marginal cost of capital will always be equal to the average cost of capital irrespective of the mode of financing.

Diagram depicting capital structure irrelevancy on valuation of the firm.



Source: James Van Horne. Financial Management and Policy (12th edition)

Arbitrage Process: Modigliani and Miller have cited the arbitrage process to support their position that the value of a levered firm cannot be higher than the value of an unlevered firm. Conversely the value of an unlevered firm cannot be higher than the value of a levered firm. The substance of this argument is that investors are able to replicate any combination of capital structure by substituting corporate leverage with 'home-made' leverage. Home-made leverage refers to the personal borrowing made by the investor in the same ratio as a levered firm. Hence corporate leverage is not something 'unique' which the investors cannot do by themselves. Hence leverage in the capital structure has no significance in a perfect capital market. Hence, firms which are identical in all respects except for their capital structure must have the same value.

In case they have different valuations, arbitrage process will commence. This will continue to occur till both firms command the same valuation. At this point, the market reaches its equilibrium.

Illustration 4

There are two firms Lambda Ltd. and Theta Ltd. which are identical in all respects, except for their capital structure. The market capitalization rate for Lambda is 10% and Theta is 12.5%.

Particulars	Lambda Ltd.	Theta Ltd.
Total Capital Employed	100,000	100,000
Equity Capital	100,000	50,000
5% Debt	-	50,000
Net Operating Income	10,000	10,000
Interest Expenses @ 5%	-	2,500
Distributable Earnings	10,000	7,500
Market Value of Debt	-	50,000
Market Value of Equity	100,000	60,000
Market Value of the Firm	100,000	110,000

Mr. Miller holds 10% of the equity of Theta Ltd. He uses the opportunity to profit through arbitrage. He sells his holding in Theta Ltd. and realizes cash of ₹6,000. He uses the ratio of leverage as Theta Ltd. on his personal account i.e. he borrows ₹5,000 at an interest rate of 5%. He acquires 10% stake in Lambda Ltd. with an investment of ₹l0,000. The return to Mr. Miller will be:

	₹
Return on investment in Lambda Ltd. (₹I0,000 @ 10%)	1000
Less: Interest on borrowing (₹5,000 @ 5%)	250
Net Income of Mr. Miller	750

His return on investment in Lambda Ltd. is the same as the previous return i.e. ₹750. However, his personal investment in Lambda is:

	₹
Total Investment in Lambda Ltd.	10,000
Less: Amount Borrowed	5,000
Net Amount Invested	5,000

As the investor is able to get the same amount return on a lesser investment, he would engage in arbitrage. As this arbitrage process will be carried on by several investors, this would result in an increase in the demand for shares of Lambda Ltd., thus driving up its market price. As the shares of Theta Ltd. will be simultaneously sold by the investors, the price of Theta Ltd. will fall due to increase in its supply. This arbitrage process would continue till an equilibrium is reached, at which point there is no opportunity to get the same return on a lesser investment. At the equilibrium level, the valuation of both firms will be equal.

Critics have attacked the arbitrage mechanism on the grounds that home-made leverage is not a perfect substitute to corporate leverage. They argue that the risks associated with personal leverage and corporate leverage are different. Hence the cost of personal borrowing may be significantly higher from the cost of debt. They further point out that an individual borrowing is governed by the principles of unlimited liability. On the other hand, an investor assumes only limited liability by investing in the shares of a levered firm. These imperfections would reduce the efficiency of the arbitrage process.

MM supporters counter the criticisms by pointing out the existence of institutional investors. These financial intermediaries can replicate the capital structure of any firm. Thus the efficiency of the arbitrage process will not be reduced.

The firm's goal is to select the capital structure that maximizes its value. Irrelevance of capital structure implies that one capital structure is as good as another and that the firm's value will be the same, regardless of the selected capital structure. This argument has been based on a number of assumptions – some explicit and some implicit – that M&M made in devising the arbitrage transaction. Let us review these to be sure that we understand the foundation on which the conclusion rests.

First, M&M assumes the two firms are identical, except for their capital structures. In particular, their NOI distributions are identical. This assumption is not crucial, and M&M's argument is valid even if the assumption is relaxed.

However, M&M did make the following crucial assumptions characterizing a perfect market:

- Only one interest rate exists at which both individuals and firms can borrow and lend. The traditional approach to capital structure claims that using leverage increases the firm's value. To refute this claim, M&M needs to assume that individual investors and firms can borrow at the same interest rate. Home-made leverage serves as a perfect substitute for the firm's leverage; that is, if investors like leverage, they can borrow themselves. For this reason, leverage does not increase the firm's value. Without the ability for firms and individuals to borrow and lend at the same rate, the whole argument collapses.
- No transaction costs exist. Investors pay no commission when they conduct an arbitrage transaction.
- No taxes are assessed or paid. All earnings are tax-free.
- The possibility of bankruptcy does not exist. Because they borrow at the risk less interest rate, firms and individuals cannot claim bankruptcy. (Otherwise, the higher the risk of bankruptcy, the higher the interest rate.)

First three assumptions are explicit in the arbitrage transaction, whereas fourth assumption is implicit. In the arbitrage transaction we use the risk less interest rate on borrowing, which implies no risk of bankruptcy. Finally, M&M does not assume that investors either like or dislike leverage. Actually, M&M provides no information on investor preference. They claim that investors will not pay a premium for a firm's leverage because those investors can create leverage by borrowing on their personal account. Similarly, investors will not pay a premium on unlevered firms when they can buy the levered firm's stock and undo the leverage by buying bonds.

Does Modigliani and Miller approach Ignore Risk?

According to M&M, the capital structure a firm selects has no effect on its value. One might then be made to conclude that leverage has no effect on the distribution of rates of return to stockholders. This is not the case. Actually, $V^L = V^U$ implies that an increase in leverage has the following effects:

– The cost of equity (expected rate of return) increases.

– Stockholders' risk exposure increases.

– The Weighted-Average Cost of Capital (WACC) remains unchanged.

M&M do not ignore risk. On the contrary, they recognize that leverage increases stockholders' risk and that the cost of equity must increase to compensate for that additional risk.

Activity 2.1:

a. Define Financial Leverage.

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b. What are the assumptions underlined in theories of capital structure?

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c. What is the essence of traditional approach?

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2.6 Merton Miller Hypothesis

Prof. Merton Miller holds the position that the capital structure decision is irrelevant even in the presence of corporate and personal taxes. The changes in

the capital structure have no impact on the valuation of the firm. This stand is in sharp contradiction to the article "Corporate Income Taxes and the Cost of Capital: A Correction" jointly authored by Modigliani and Miller wherein they agreed that debt enjoyed substantial tax advantage. According to him, the effect of corporate taxes and personal taxes tend to get canceled out and the MM hypothesis continues to be valid even in the existence of taxes. This position implies an assumption that income on equity is tax-free i.e., $\tau_{ps} = 0$. Further the corporate tax rate is equal to the personal tax rate on interest income i.e., $\tau_{pd} = \tau_c$. Thus the post-tax income to the investors will remain the same.

Miller explains that different investors have different rates of personal income tax.

The investors who are in tax exempt would prefer to invest in debt, while investors in higher tax brackets prefer equity investments. Miller argues that when the market is in a state of disequilibrium, companies will alter their capital structures to align with the tax incidence on the investors. As companies increase the quantum of debt in their capital structure, the supply of debt in the market increases. This will exhaust the capacity of tax exempt 'clientele' (investors) to absorb debt. The companies will then market their debt to investors in the next tax bracket. This process will continue till the companies cover the class of investor in the tax bracket equal to the corporate tax rate. The market will reach its equilibrium when the personal tax rate of the investors is equal to the tax rate on corporate income, at which point it is no longer possible for the company to increase its valuation by altering its capital structure.

The Effect of Leverage on the Firm's Cost of Equity

Stockholders' expected rate of return on equity is the firm's cost of equity. Let us now see how capital structure irrelevance implies that the larger the leverage, the higher the cost of equity. To see this, let us denote the expected value of the firm's Net Operating Income by $\overline{NOI}$. Without leverage, the rate of return on equity is $R^u = NOI/V^u$, where, NOI is uncertain. The cost of equity is the expected rate of return:

$$k^u = R^u = \frac{\overline{NOI}}{V^u} \text{ (The bar denotes expected value)}$$

The rate of return on the levered firm's equity is,

$$R^L = \frac{\overline{NOI} - rB}{E^L} = \frac{\overline{NOI}}{V^U} \times \frac{V^U}{E^L} - \frac{rB}{E^L}$$

It follows that the levered firm's cost of equity is,

$$k^L = R^L = \frac{\overline{NOI} - rB}{E^L} = \left(\frac{\overline{NOI}}{V^U} \times \frac{V^U}{E^L} \right) - \frac{rB}{E^L}$$

Where, rB is the interest, and E^L is the levered firm's equity. The superscript L distinguishes E^L from the unlevered firm's equity, E. However, if capital structure is irrelevant, $V^U = V^L$ and, by definition, $V^L = E^L + B$ (the levered firm's total value is the sum of its equity and debt). Substituting $E^L + B$ for V^U, one can rewrite the rate of return on the levered firm's equity as:

$$R^L = \left(\frac{NOI}{V^U} \times \frac{E^L + B}{E^L}\right) - \frac{rB}{E^L} = \frac{NOI}{V^U} + \left(\frac{NOI}{V^U} - r\right)\frac{B}{E^L}$$

Using the definitions of R^U and R^L one can obtain equation (4), which gives the relationship between rates of return on levered and unlevered firms' shares:

$$R^L = R^U + (R^U - r)\frac{B}{E^L} \quad \ldots (4)$$

Taking expected values of both sides, one can obtain the relationship between levered and unlevered firms' cost of equity:

$$k^L = k^U + (k^U - r)\frac{B}{E^L} \quad \ldots (5)$$

From equation (4) we see that the realized leverage effect may be positive or negative in a given year. In a good year, $R^U > r$, and the leverage effect is positive. In a recession when $R^U < r$, the leverage effect is negative because $R^L < R^U$. However, equation (5) shows that the cost of equity increases with leverage when $k^U > r$, otherwise, the firm does not receive a risk premium for its business risk.

Example: TAAL Declares Interim Dividend

Stockholders' expected rate of return on equity is the firm's cost of equity.

Taneja Aerospace Aviation Ltd (TAAL), the first private sector company to manufacture non-military aircraft in collaboration with Partenavia of Italy to manufacture six-seat twin piston-engine P68C and the eleven-seat twin turbo-prop Viator aircraft has declared interim dividend of 10% at ₹ 0.50 / share on February 15th, 2022. Later on 11th May, 2022, TALL declared second interim dividend of 40% which amounts to ₹2 per share Dividend payment is the cost of equity for TALL.

Source: https://economictimes.indiatimes.com/taneja-aerospace-aviation-ltd/infocompanydividends/companyid-8685.cms dated 22nd May 2022. Accessed on 5th July, 2022

2.7 The Effect of Leverage on the Standard Deviation of Returns

Equation 4 can be rewritten as:

$$R^L = R^U\left(1 + \frac{B}{E^L}\right) - r\frac{B}{E^L} = R^U\left(\frac{E^L + B}{E^L}\right) - r\frac{B}{E^L}$$

Where,

R^u = rate of return on equity without leverage.

R^L = rate of return on equity of a levered firm.

Since $V^L = V^u$ and $E^L + B = V^L$, we have

$$R^L = R^U \times \frac{V^U}{E^L} - r\frac{B}{E^L} \quad \text{..... (6)}$$

Because rB/E^L is constant, the variance is

$$\sigma_L^2 = \left(\frac{V^U}{E^L}\right)^2 \sigma_U^2$$

Where,

σ_U^2 is the variance of returns on the unlevered firm.

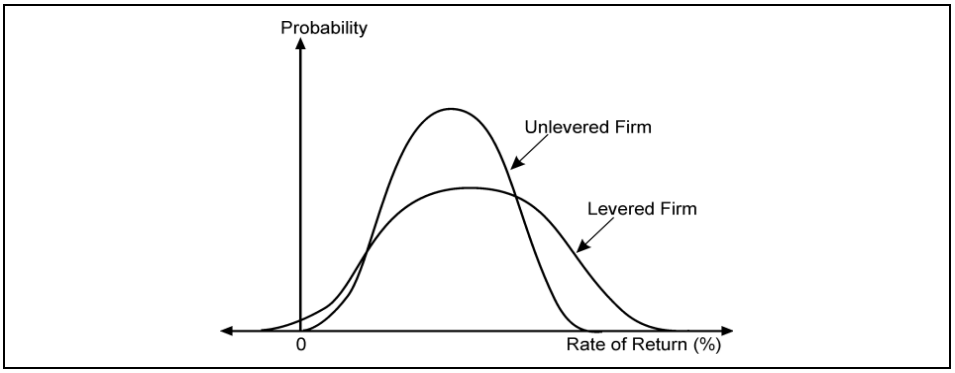
The standard deviation is

$$\sigma^L = \frac{V^U}{E^L}\sigma^U \quad \text{... (7)}$$

Because $V^u/E^L > 1$, so that leverage increases the standard deviation of the rate of return.

Figure 2.4 illustrates the distributions of the rates of return on a levered and an unlevered firm's equity. The figure shows that leverage increases both the expected rate of return (the shift to the right in the distribution), and the dispersion of the rates of return (the distribution of the levered firm is flatter than that of the unlevered firm).

Figure 2.4: Cost of Equity and Leverage



Source: ICFAI Research Center

The Effect of Leverage on Beta

Denoting the rates of return on unlevered and levered firms by R^U and R^L, an unlevered firm's beta is $b^U = Cov(R^U, R_m)/\sigma_m^2$. Similarly, a levered firm's beta is $b^L = Cov(R^L, R_m)/\sigma_2^m$.

Using equation (6), we can rewrite the levered firm's rate of return as:

$$R^L = R^U \frac{V^U}{E^L} - r\frac{B}{E^L}$$

Therefore,

$$b^L = \text{Cov}\left(R^U \frac{V^U}{E^L} - r\frac{B}{E^L},\ R_m\right) / \sigma_m^2$$

Since rB/E_L is a constant, its covariance with R_m is zero, V_U/E_L is also a constant; therefore, we get

$$b^L = \frac{V^U}{E^L}\text{Cov}(R^U, R_m) / \sigma_m^2$$

Or, $$b^L = \frac{V^U}{E^L} b^U \quad \ldots (8)$$

Since $V^U/E^L > 1$, the levered firm's beta is larger than the unlevered firm's beta; and the higher the leverage, the higher the beta.

Example: Stocks of Tata Motors are volatile due to High values of Beta and Standard Deviation

The levered firm's standard deviation and beta is larger than the unlevered firm. Tata Motors is a very high-beta stock as per Devang Mehta of Centrum Wealth Management. The long-term beta of 2.14 and standard deviation of 19.86% is due to highly levered financials as the consolidated debt as on 31.03.21 stood at ₹ 75,389 crore. The long-term beta of Wipro which is low levered company is 0.96 and standard deviation is 9.46%.

Source: https://economictimes.indiatimes.com/markets/expert-view/is-tata-motors-stock-too-volatile-for-your-portfolio/articleshow/84313266.cms?from=mdr dated 11th July 2022. Accessed on 5th July, 2022

2.8 Capital Structure in the Imperfect Market

Till now we have discussed that capital structure does not affect firm value in a perfect capital market. However, optimal capital structure may vary as market conditions (such as prevailing interest rates) change. Apart from this, firm-specific factors may determine the optimal capital structure.

An imperfect capital market has transaction costs, taxes, possible bankruptcy (which involves bankruptcy costs and causes the interest rate to vary directly with risk), and possible conflicts of interest among stockholders, bondholders, and management (giving rise to agency costs). These factors are enough to destroy Modigliani and Miller's conclusion that capital structure does not matter. To determine its optimal capital structure, a firm must consider taxes, bankruptcy costs, and agency costs.

Let us now use the arbitrage argument discussed in the earlier section in order to show that whenever $V^L = V^U$, a financial transaction that guarantees a certain profit can be made. Such transaction will continue to be available until in equilibrium

$V^L = V^U$. In practice, however, these transactions involve costs that reduce the profit from arbitrage. This implies that V^L should not be expected to equal V^U in equilibrium, but does not tell us what factors determine the "best" capital structure.

Another reason why the Modigliani-Miller arbitrage argument does not hold is that the interest rate relevant for borrowing is typically greater than the one for lending. Your local bank pays a lower interest rate on a savings account than it charges on a loan. The two principal reasons why the rates differ between borrowing and lending are as follows:

- The bank operates as an intermediary; that is, it obtains money from savers and channels it to borrowers. To make a profit on such deals, the bank must charge a higher rate on the loans it makes than the rate it pays on savings accounts. If the borrowing and lending rates were equal and ignoring expenses, the bank's profit would be zero.
- Any lending institution, including a bank, must consider the possibility that the borrower will go bankrupt. The higher the probability of bankruptcy, the higher the interest rate the bank must charge to compensate for this risk.
- If a firm and an individual have different bankruptcy risks, they will be able to borrow at different interest rates; in most cases, a firm can borrow at a lower interest rate than an individual can.

Relevance of Interest Rates to the Capital Structure Issue

As discussed in the earlier section, if $V^L > V^U$, a person could sell a levered firm's shares, buy an unlevered firm's shares, and borrow on personal account to create home-made leverage. However, if a firm can borrow at, say, 8% while an individual can only borrow at 10%, home-made leverage is not a perfect substitute for the firm's leverage. Therefore, V^L can exceed V^U in equilibrium.

Similarly, V^U can exceed V^L. It was earlier argued that an individual could sell unlevered firm's shares, buy levered firm's shares, and lend money or buy bonds that would undo the firm's leverage. However, if the interest rate at which an individual can lend money is lower than the rate at which the levered firm borrows money, the individual may not be able to make an arbitrage profit; this is why it is possible that $V^U > V^L$ in equilibrium.

So, contrary to the assumptions made earlier, the interest rate can be different for borrowing and for lending and can differ among borrowers to reflect different bankruptcy risks. The difference between borrowing and lending rates is one reason why the M&M arbitrage argument is not valid for an imperfect market.

This discussion makes two suggestions:

– Because borrowing and lending interest rates differ, no arbitrage transactions may be available. So V^L and V^U may differ in equilibrium.

– The borrowing interest rate increases with the risk of bankruptcy.

Capital structure does matter and is one of the most important issues confronting a firm's CFO. In practice the capital market is far from perfect: transaction costs exist, taxes exist, and the interest rates for borrowing and lending are not identical. A firm can generally borrow at a lower interest rate than an individual, and home-made leverage is not a perfect substitute for the leverage that a firm can obtain. Bankruptcies occur and are costly. In addition, professional managers, not owners, usually manage a firm, and managers' interests may run counter to those of the stockholders. Factors such as these render the capital structure very relevant. We discuss below the major imperfections in the capital market and how they affect the firm's capital structure. We start with corporate tax, which makes it cheaper for a firm to borrow relative to the individual investor. Then we discuss bankruptcy costs and agency costs.

Example: Banks Start Raising their Lending Rates for External Benchmark Loans

Interest rate on bank deposits is always less than the rate at which banks lend to companies. Which implies that banks charge more interest on lending to corporates which in turn can impact the capital structure. Inflation forced RBI to raise the repo rate by 40 basis points with effect from 4th May 2022 and many large banks such as ICICI Bank and Bank of Baroda have raised their lending rates by an equal amount on loans linked to the external benchmark. ICICI Bank has raised its external benchmark lending rate by 40 basis points to 8.10 per cent while Bank of Baroda increased its repo-linked lending rate to 6.90 per cent. Companies which have borrowed funds for their capital will be impacted due to the increased pricing.

Source: https://www.business-standard.com/article/finance/bob-icici-bank-hike-retail-loans-rates-by-40-bps-on-rbi-s-action-122050500673_1.html dated 5th May, 2022. Accessed on 5th July, 2022

2.9 Corporate Taxes

The earlier discussions have assumed a tax-free world. Let us now consider the real world in which governments levy taxes. This section discusses on how corporate taxes affect the firm's value and capital structure. M&M's argument that capital structure is irrelevant relies on the assumption that both a levered and an unlevered firm have the same expected Net Operating Income (NOI). This may well be true on a pre-tax basis. However, MM shows that a levered firm enjoys

tax advantages because tax laws permit it to deduct any interest paid as an expense for tax purposes. This tax advantage increases the levered firm's average cash flow. Capital structure, therefore, is relevant because, other things being equal, the more leverage a firm employs, the higher the firm's value.

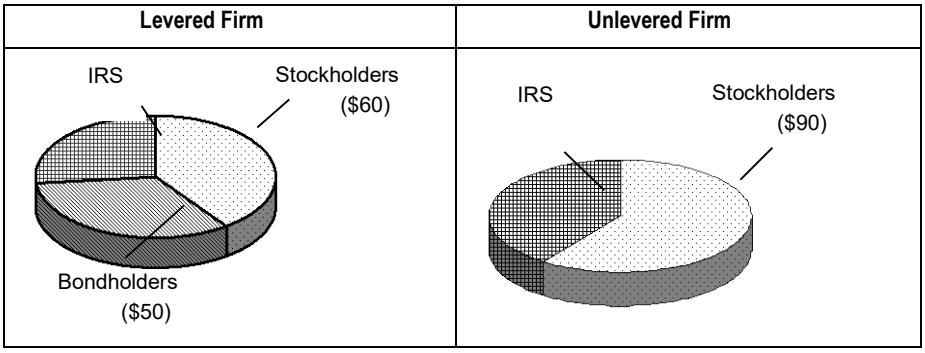
To illustrate how corporate income tax affects the firm's value, let us review the example given in Table 2.1, which shows the after-tax incomes of a levered and an unlevered firm. The NOI is assumed to be ₹150, the interest rate is 10%, the unlevered firm has ₹1,000 equity, and the levered firm has ₹500 debt and ₹500 equity. The NOI produced by the total investment is the same for both the firms. From Table 2.1, it is seen that bondholders' and stockholders' total income increases with leverage.

Table 2.1: After-Tax Income of a Levered and an Unlevered Firm (in Rupees)

	Unlevered Firm (₹)	**Levered Firm (₹)**
NOI	150	150
Interest	0	50
Net income before tax	150	100
Taxes (assumed rate = 40%)	60	40
Stockholders' after-tax income	90	60
Bondholders' after-tax income	0	50
Total after-tax income of stockholders and bondholders	90	110

Figure 2.5 illustrates the division of two hypothetical firms' income among the shareholders, bondholders, and the IRS (International Revenue Service).

Figure 2.5: Division of Hypothetical Firm



Source: ICFAI Research Center

The interesting features of Table 2.1 and Figure 2.5 are:

With leverage, the tax liability is lower for the levered firm (₹40, as opposed to ₹60 for the unlevered firm), and the tax saving is distributed to the shareholders. The levered firm's total cash flow to shareholders and bondholders is ₹110, compared to only ₹90 for the all-equity firm. The ₹20 difference represents the tax saving due to the interest deduction.

Let us not think here that the levered firm's shareholders fare worse because they receive only ₹60 rather than the ₹90 that the unlevered firm's shareholders receive. In this example, the ₹60 income is based on a much lower investment by the stockholders because half of the levered firm is financed by debt. The reason the unlevered firm's stockholders fare better is that the IRS takes a smaller slice of their income (i.e., the firm's tax burden is reduced through leverage). Indeed, the rate of return to stockholders is 9% (₹90/₹1,000 = 0.09 or 9%) for an unlevered firm and 12% (₹60/₹500 = 0.12 or 12%) for a levered firm.

Example: Tax Reduction, Cost Cuts Buoys India Inc Net by 105% in FY21

The government of India slashed the effective corporate tax rate from 35 to 26 per cent in September 2019 and this boosted their bottom line to record levels in FY2. While the average revenue of Indian companies fell only 5 per cent in FY21, their net income grew by 105 per cent over FY2. Reduction in tax was a double whammy for the companies as they need to pay less tax and also claim IT deduction on the corporate tax on profits which was 27.17% effectively.

Source: https://www.business-standard.com/article/companies/tax-reduction-cost-cuts-buoys-india-inc-net-by-105-in-fy21-report-121072001399_1.html dated 20th July 2021. Accessed on 5th July, 2022

2.10 The Interest Tax Shield

The tax saving due to leverage is the interest tax shield. In the example given in Table 2.1, the interest expense is ₹50 (rB = 0.10 x ₹500 = ₹50). Since this is tax-deductible, T percent (the average income tax rate) of this ₹50 is saved. The tax saving, or the interest tax shield, is given by

Interest tax shield = TrB … (9)

To analyze how leverage affects the firm's value, let us first examine the unlevered firm's cash flows and then turn to the levered firm's flows. For an unlevered firm the after-tax cash flow will be

(1 – T) x NOI

For a levered firm with the same capital investment, business risk, and NOI, the total cash flow (to stockholders and bondholders) will be

(1 – T) x (NOI – rB) + rB = (1 – T) x NOI + TrB

Here we are interested in studying how leverage affects the firm's net income (i.e., bondholders' and stockholders' total net income combined). Therefore, the interest rB is first deducted, which reduces the firm's tax burden, and then is added back to show the cash flow to bondholders.

Let the appropriate discount rate for the uncertain cash flow, (1 – T) x NOI, be denoted by k. The value of the unlevered firm (assuming a perpetuity) will be

$$V^U = \frac{(1-T)\overline{NOI}}{k}$$

Where, $\overline{NOI}$ is the NOI's expected value.

The expected value of the levered firm's cash flow has two components: (1 – T) $\overline{NOI}$, and TrB. Since the first component is identical to that of the levered firm, by the law of one price, its value must be V^U. Also, since the interest tax shield, TrB, is assumed to be certain, it is discounted at the risk less interest rate, r, and therefore its PV is TB.

If the firm's income is positive, it will enjoy the interest tax shield, TrB. If income is negative, the firm pays no taxes but does not forfeit the benefits of the interest tax shield. If the firm loses money in a given year, the IRS allows the firm to carry such losses forward and backward. Thus, the firm obtains TrB with virtual certainty, regardless of its taxable income in a given year.

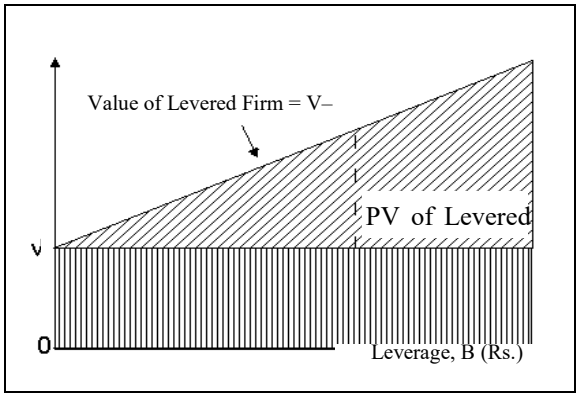
The levered firm's value will be V^L,

$$V^L = V^U + TB \qquad \ldots (10)$$

Value of levered firm = Value of unlevered firm + PV of the interest tax shield

Figure 2.6 illustrates the value of two firms with the same NOI as a function of debt level, B. For zero debt both firms are unlevered and have the same value. As one firm's debt level increases, the gap between the two firms' values grow. This gap represents the PV of the levered firm's interest tax shield. The higher the proportion of debt in the firm's capital structure, the larger the firm's value. Other things being equal, extreme debt financing would be recommended.

Figure 2.6: Value of a Firm



Source: ICFAI Research Center

Equation (9) implies that the more debt the firm employs, the greater its tax benefit and the greater its value. Do managers really behave according to equation (9) and employ extreme levels of debt? If not, why not? A small sample of firms shows they employ various levels of long-term debt relative to their total assets:

Colgate-Palmolive	50%
Intel	4.1%
Coca-Cola	72.2%
Microsoft	0%

Interest Deductibility versus Costs of Financial Distress and Bankruptcy

The Traditional Trade-off Theory provides the following insight towards the understanding of capital structure. According to this theory, as a firm increases debt relative to equity in its capital structure, expected costs of future financial distress and bankruptcy also rise, eventually enough to fully offset the benefit to the tax shield, at the margin. At this point, firm value is maximized, and beyond this point firm value actually falls.

Thus, the Traditional Trade-off Theory suggests:

- For a given firm there exists a unique optimal capital structure that consists of a finite level of leverage, and
- The optimal amount of leverage varies across firms, for two reasons: (i) corporate tax rates vary across firms, and (ii) the rate at which expected costs of future financial distress and bankruptcy increase with leverage also varies across firms.

Example: Interest Tax Shield from the Financial Position of ITC

The tax saving due to leverage is the interest tax shield.

The consolidated financial position of ITC is as follows. *(₹ in crore)*

Particulars (31.03.22)	Levered details	If unlevered
Net operative income	19,871.48	19,871.48
Interest	41.95	Nil
Income before tax	19,829.53	19,871.48
Tax	4771.70	*4783.03
Income after tax	15,057.83	15,046.50

* Assuming the corporate tax rate at 27% on the interest component if unlevered which works out to ₹11.33 crore.

The tax savings due to leverage is ₹ 11.33 crore which is the tax shield in case of ITC. Thus if unlevered, the income after tax will be less to that extent.

Source: https://www.moneycontrol.com/financials/itc/profit-lossVI/ITC#ITC. Accessed on 5th July, 2022

Activity 2.2

a. What are the costs involved in imperfect capital market?

……

..…….

b. Write the effect of corporate taxes on capital structure.

……

……

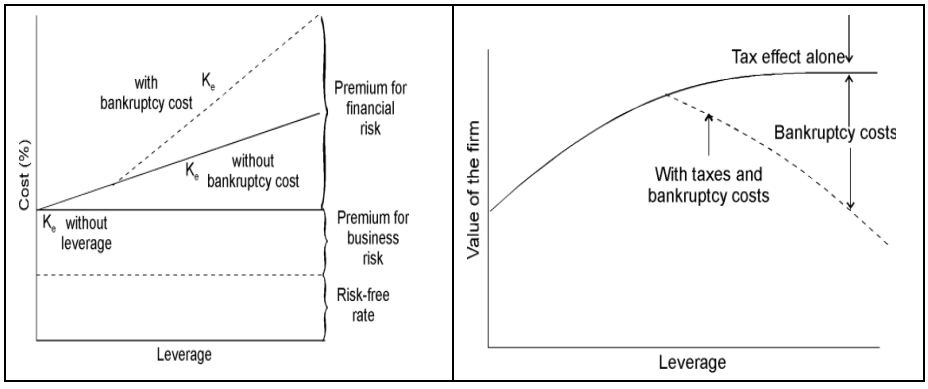
2.11 Bankruptcy Costs and the Capital Structure

The various theories of capital structure have not addressed to the existence of bankruptcy costs. In a perfect capital market, it is assumed that all the assets of a firm can be sold at their economic value without incurring any liquidating expenses. However, in real life situation, the liquidation costs like legal and administrative expenses are significant. Further, the assets may have to be sold at a distress price which is below its economic value. Thus, the net realizable value of the firm is less than the economic value, which represents a 'dead weight loss' to the system. The lenders will assume the *ex post* bankruptcy costs, but they will pass on *ex ante* bankruptcy costs to the firm in the form of higher cost of debt (k_d). Ultimately the shareholders bear the burden of *ex ante* bankruptcy costs and the consequent lower valuation of the firm.

A levered firm has greater possibility of bankruptcy than an unlevered firm. Hence the bankruptcy cost for a levered firm is correspondingly higher. However, the bankruptcy costs are not a linear function of the leverage. When a firm employs low levels of leverage in its capital structure, the risk of bankruptcy is insignificant. Therefore, there is no impact of bankruptcy costs on the valuation of the firm, till a threshold limit is reached. However, after the threshold level of leverage, the threat of bankruptcy becomes real. The probability of bankruptcy dramatically increases with further application of leverage. The bankruptcy costs rise at an increasing rate beyond the threshold level.

The same is graphically represented as under:

Figure 2.7: Bankruptcy Costs and Capital Structure



Source: ICFAI Research Center

Example: 6 Stocks with High Financial Leverage and Beta

Companies with high leverage trade at high betas, and carry high risk. Adani Power is highly levered company with total debt amounting to ₹ 650,263 million, net worth at ₹4,976 million and DER of 131 as on March 2021. This is followed by Tata Communication's with total debt standing at ₹ 99,585 million, equity at ₹ 1,155 million and DER at 86. This is followed by Mahindra Holidays' with total debt at ₹ 9,393 million, net worth at ₹ 847 million and D/E ratio of 11. Highly levered companies suffer from poor DER and comparatively lower level of equity. The net realizable value of the firm will be less than the economic value due to inclusion of high costs associated with bankruptcy, legal costs, liquidation costs etc.

Source: https://www.livemint.com/market/stock-market-news/6-stocks-with-high-financial-leverage-11629779160891.html dated 24th August 2021. Accessed on 5th July, 2022

2.12 Agency Costs and the Capital Structure

Another set of market imperfections that make the mix of debt and equity relevant to the firm's value is agency costs. Agency costs arise when the interests of stockholders conflict with those of the bondholders or the managers. The agency costs are the reduction in the value of the firm due to this conflict. These conflicts were assumed not to exist in Modigliani's and Miller's perfect market environment. Similar to the interest tax shield, agency costs that are generated by these conflicts in interest cause a firm's capital structure to affect its total value.

Some agency costs are actually reduced by using debt, while others are magnified at high debt levels. In contrast to corporate taxes, which strictly favor the increased use of debt, different types of agency costs exert opposite influences on corporate capital structures. Focusing on this factor only, the firm's objective is to select a capital structure that, other things being equal, minimizes total agency costs.

A significant amount of research during the last two decades has been devoted to models in which capital structure is determined by agency costs, i.e. costs due to conflict of interest.

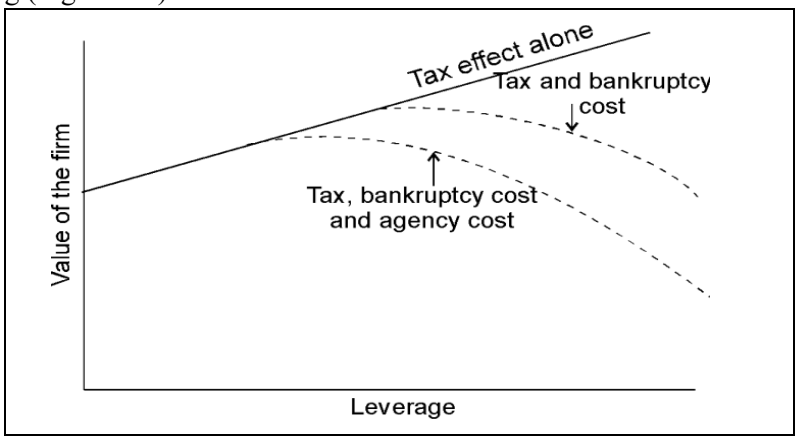
Firstly, conflicts between shareholders and managers arise because managers are not entitled to 100% of the residual claims. Consequently, the managers do not capture the entire gain from the profit enhancement activities, but they do bear the entire costs of these activities. The managers may, therefore, put in less efforts in value enhancement activities and may also try to maximize their private gains by lavish perquisites, plush offices, 'empire building' through sub-optimal

investments, etc. While the managers would have the entire costs of refraining from such inefficiencies, they are entitled to only a fraction of the gains. These inefficiencies decrease with the increase in the manager's stake in the firm.

Secondly, conflicts also arise between the interests of debt holders and equity holders. If an investment financed with debt yields high returns (higher than the cost of debt), equity holders are entitled to the gains. On the other hand, if the investment fails, the debt holders suffer the losses due to limited liability of the equity holders. As a result, equity holders may benefit from investing in very risky projects even if their value decreasing. Such investments result in a decline in the value of debt. The loss in the value of equity from poor investments can be more than offset by the gains in equity value at the expense of the lenders.

The lenders to the firm protect themselves against expropriation by imposing certain conditions on the firm. These conditions are called protective covenants and remain in force till the debt is repaid. These conditions may relate to restrictions on further borrowings by the firm, cap on payment of dividends, managerial remuneration, sale of assets, limitations on new investment, etc. These conditions may lead to sub-optimal operations resulting in inefficiencies.

Further, the lenders put in place strong monitoring and corrective mechanisms to enforce the debt covenants. The monitoring and enforcement costs are passed on to the firms in the form of higher cost of debt (k_d). These costs together with the cost of inefficiencies (due to the covenants) are called agency costs. As residual owners, the shareholders have an incentive to ensure that agency costs are minimized. The existence of agency costs acts as a disincentive to the issuance of debt. The agency cost may be virtually non-existent at low levels of leverage. However, after the threshold point, the lenders start perceiving the firm to be increasingly risky. This may result in a disproportionate increase in the agency costs due to the need for extensive monitoring (Figure 2.8).



Source: ICFAI Research Center

Example: Conflict of Interest at AT&T

Agency Costs that Encourage the Use of Debt. AT & T, the telecommunication giant, acquired Direct TV and Time Warner in 2018. The company, instead of raising equity, opted for debt to the extent of $180 billion and is also one of the most indebted companies in the world. Though the telecom giant was gradually reducing the debt levels they have announced raising another $12.5 billion via a bond sale to fund expansion, repay some of its outstanding debt and boost liquidity. The outstanding debt as on December 2019 stood at $147. 2 bn. The managers of the company can considerably reduce the various conflicts of interest between the firm's equity holders through the effective application of debt claims in the capital structure. Loans and bonds can be used sensibly to invest but too much debt can be catastrophic for a company, especially if the economy goes south and will be one of the reasons to increase the agency cost.

Source: https://www.gfmag.com/global-data/economic-data/companies-largest-debt-world-2020 dated 26th May 2020. Accessed on 5th July, 2022

Agency Costs that Encourage the Use of Debt

The separation of ownership and control within publicly-held corporations causes various conflicts of interest between the firm's equity holders and managers. These conflicts can be controlled through the effective application of debt claims in the capital structure. In the following discussion, we show that agency costs may encourage the use of debt.

Consumption of management perks occurs when managers use corporate resources to acquire goods and services for their personal benefit. Examples of such goods and services include excessive travel, plush offices, use of corporate jets, and luxury hotel accommodations.

A 100% owner-manager has an incentive to use perquisites only when they create value for the firm. In contrast, the manager of a large, publicly-held corporation typically owns a small percentage of the common equity and has an incentive to engage in excessive use of perquisites, because the personal utility these perks provide come largely at other equity holders' expense.

Suppose that repurchasing stock with borrowed funds moves the debt/equity ratio to 2.0 and increase the manager's proportion of shares from 10% to 30%. Since every dollar of perquisites consumed now costs the manager three times what it did before the capital structure change, the manager has fewer tendencies to over indulge. Debt helps control perquisite consumption by better aligning the interests of managers and equity holders.

A firm can also use debt to control its over investment problem. Over investment occurs when managers reinvest excess cash flows in projects with negative net present values. Motivations to over invest are driven by "empire building" ambitions or size-based compensation arrangements. During the 1980s financial leverage was often used to force unwieldy conglomerates to eliminate over investment by divesting unprofitable lines of business and by cutting costs.

Agency Costs that Discourage the Use of Debt

The separation of ownership and control in publicly held corporations can also cause conflicts of interest between stockholders and bondholders and among various types of creditors. Some of these conflicts occur in the ordinary course of business; others are present only when the firm is in financial distress. In the following discussion, we explain the nature of these conflicts and show how the firm can augment its total value by selecting the appropriate type and level of debt obligations.

Managers have a number of incentives to pursue growth-oriented strategic options. The larger the organization, the greater the economic and political power of the top management teams, and the greater the ability of the organization to marshal resources necessary to deal effectively with its competitive and social environment. Also, larger organizations are seen as being able to maintain their freedom from the discipline of the capital markets. As a generalization, it can be said that growth does lead to increasing the wealth of shareholders. However, the concern is that too many of the activities associated with increasing the size of organizations are motivated not by a desire for maximizing shareholder wealth, but by opportunities for the self-aggrandizement of management.

The contractual device suggested by agency theory to accomplish the transfer of wealth from the organization to the investors is debt creation. Debt provides a means of bonding manager's promises to pay out future cash flows. It also provides the means for controlling opportunistic behavior by reducing the cash flow available for discretionary spending. Top managers' attention is then clearly focused on those activities necessary to ensure that debt payments are made. Companies failing to make interest and principal payments can be declared insolvent and can be dissolved. This use of debt as a disciplinary tool makes survival in the short-term the central issue for all concerned.

Agency theory also has important implications for the relationship between stockholders and debt-holders. Stockholders are interested in the return over and above that amount which is required to repay debt. Debt-holders are only interested in the debt payment specified in the contract. Stockholders are seen as sometimes being interested in pursuing riskier business activities than debt-holders would prefer. When this occurs debt-holders may charge higher prices for

debt capital and institute greater control measures to prevent top managers from investing capital in riskier undertakings.

However, agency theory does not take into consideration competitive environments, nor does it consider the necessity for managers to make choices beyond a stockholder wealth-maximizing perspective. This would seem to be a serious omission for two reasons. First, debt and equity represent different constituencies with their own competing, and often mutually exclusive, goals. Second, as the level of debt increases, the corporate governance structure can change from one of internal control to one of external control. For firms that adopt debt as a control mechanism, lenders become the key constituents in the corporate governance structure. This can have a significant impact on both managerial discretion, and on the ability of an organization to deal effectively with its competitive environment.

2.13 Trade-off Theory of Financing

The principal benefit of debt financing is that it provides tax shelters which increase the residual available for distribution to equity shareholders. However, the main drawback associated with debt financing is the risk of bankruptcy. The increase in the levels of leverage, while resulting in the availability of larger tax shields also involves a correspondingly higher cost of financial distress. The firm attempts a trade-off between the size of the tax shelter and the cost of financial distress.

The chances of financial distress is higher in case of start-ups and high growth ventures. Such firms are exposed to the risk of erratic cash flow stream and the tangible asset base is low. Hence, such firms should not place high reliance on debt in their capital structure. On the other hand, firms with stable income stream and sound asset base face lower risk of bankruptcy. Such firms can apply relatively higher levels of leverage in their capital structure.

Asymmetric Information and Capital Structure

This hypothesis is based on the premise that managers/insiders have private information about the characteristics of the firm's returns stream or investment opportunities. Hence, capital structure is designed to mitigate inefficiencies caused due to such information asymmetries.

Stewart Myers and Nicholas Majluf in their pioneering article 'Corporate Financing and Investment Decisions When Firms have Information That Investors Do not Have' postulated that if investors are less informed than the firm insiders about the valuation of the firm, the equity may be mispriced by the market. If firms are to finance new projects by issuing equity, underpricing may be so severe that new investors capture more than the NPV of the new project,

resulting in a net loss to the existing shareholders. In this case, the project is rejected even though its NPV is positive. The underinvestment problem can be avoided if the firm can finance the investment by issuing securities that will have lesser or nil undervaluation. For example, internal accruals do not have any element of undervaluation and in case of debt the undervaluation will be less severe. Therefore, firms use equity financing only as a last resort.

Example: Godawari Power and Ispat Turns Debt Free

Firms use equity financing only as a last resort and opt for internal accruals or debt to reduce undervaluation of the equity component. Godawari Power and Ispat Ltd (GPIL) has become debt-free by repaying all its long-term loans as the company said it has repaid the outstanding debt of Rs 457 crore. The company's standalone long-term outstanding debt at Rs 1,369 crore as of March 31, 2017 which was to be repaid by FY 2032 was brought down to Rs 457 crore as of March 31, 2021, by substantial repayment of debt during 2020-21 from internal accruals, with improvement in its financial performance and finally cleared all its debt in 2021-22. The company officials have improved the valuation of the company by adopting trade off theory of financing.

Source: https://www.business-standard.com/article/companies/godawari-power-and-ispat-turns-debt-free-pays-all-long-term-loans-121070600283_1.html dated 6th July 2021. Accessed on July 5th 2022

2.14 Signaling Through Capital Structure

Some theories postulate that changes in capital structure have information content about the valuation of the firm. These theories explain that capital structure changes are explicit signals about the firm's valuation, sent intentionally by the management. An increase in the debt content of the capital structure is generally taken as a signal of undervaluation of the firm. As the increased level of leverage is accompanied by higher risk of bankruptcy, the increased level of debt indicates the confidence of the management in the future prospects of the firm. Hence, it carries greater conviction than a mere announcement of undervaluation of the firm, by the management. On the other hand, an issue of equity is a signal that the firm is overvalued. The market concludes that the management has decided to offer equity because it is valued higher than its intrinsic worth by the market. The markets normally react favorably to moderate increases in leverage and negatively to fresh issue of equity.

Example: Swiggy Raises $700 Million at $10.7 Billion Valuation

Markets normally react favourably to moderate increases in leverage and negatively to fresh issue of equity.

Swiggy is the fourth decacorn from India after fintech Paytm, hotel aggregator Oyo and ed-tech firm Byju's. The firm is valued at $ 10.7 bn after it has raised

Contd. ……

a moderate debt of $ 700 million led by Invesco, Baron Capital Group, Sumeru Venture, IIFL AMC Late Stage Tech Fund, Kotak, Axis Growth Avenues AIF-I, Sixteenth Street Capital, Ghisallo, Smile Group and Segantii Capital during January 2022. The company earlier raised $1.25 billion from SoftBank Vision Fund II, Prosus, Accel and Wellington when its valuation was $5.5 billion during July 2021. It can be observed that with a moderate increase in debt compared to earlier transaction, the value of the company has almost doubled from $ 5.5 bn to $ 10.7 bn debt indicating favourable reaction of the market.

Source: . https://www.moneycontrol.com/news/business/startup/swiggy-raises-700-million-at-10-7-billion-valuation-as-rival-zomato-sees-intense-selloff-7975951.html dated 24th January 2022. Accessed on 5th July, 2022

EBIT-EPS Analysis

This is an important tool to analyze the impact of alternative methods of financing on the Earnings Per Share (EPS) of the firm. This tool captures the sensitivity of the EPS to any changes in the Earnings Before Interest and Tax (EBIT). It gives an insight into the risk-return trade-off that governs valuation.

The relation between EBIT and EPS is as follows:

$$EPS = \frac{(EBIT - I)(1 - T)}{n}$$

Where,

'I' is the annual interest payment .

T is the tax rate of the firm.

n is the number of shares.

The EBIT indifference point is the level at which the EPS of the firm is the same for two different capital structures. The EBIT-EPS indifference point can be mathematically represented as follows:

$$\frac{(EBIT - I_1)(1 - T)}{n_1} = \frac{(EBIT - I_2)(1 - T)}{n_2}$$

Illustration 5

Particulars	I	II
Operating Income	3000	3000
Interest Paid	0	400
Net Income	3000	2600
Tax Paid @ 40%	1200	1040
Distributable Earnings	1800	1560
		Contd. ……

Share Capital	10000	6000
Debt	–	4000
No. of Shares Outstanding	1000	600
Earnings Per Share	1.80	2.60

To compute the indifference point:

$$\frac{(EBIT - I_1)(1-T)}{n_1} = \frac{(EBIT - I_2)(1-T)}{n_2}$$

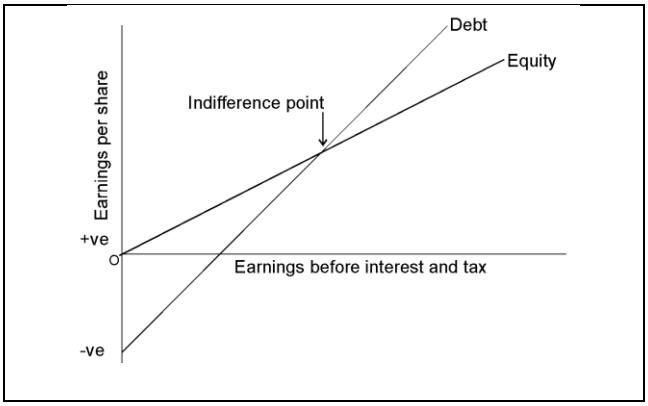
$$\frac{(EBIT - 0)(1-0.4)}{1000} = \frac{(EBIT - 400)(1-0.4)}{600}$$

$$\frac{0.6\ EBIT}{1000} = \frac{0.6\ EBIT - 240}{600}$$

Solving the above equation, we can get the value of EBIT as 1000. It may be observed that when the EBIT is 1000, the EPS is 0.6 under both the capital structure patterns.

The EBIT indifference point can be graphically represented as follows.

Figure 2.9: EBIT-EPS Indifference Chart



Source: ICFAI Research Center

The EBIT-EPS analysis helps in understanding the impact on the earnings per share under alternative methods of financing. In case of the indifference point being lower than the expected level of EBIT, the use of debt financing is supported. The case for equity financing is stronger if the indifference point is higher than the expected level of EBIT. Further, assigning probabilities to various levels of EBIT would make the EBIT-EPS analysis more rigorous. If the probability of the EBIT being lower than the indifference point is insignificant, there is a stronger case for applying leverage. On the other hand, if the probability of the EBIT being lower than the indifference point is high, use of debt financing becomes riskier.

Thus financial leverage magnifies the underlying business risk of the firm on the earnings per share.

ROI-ROE Analysis

The relationship between the Return on Investment (total capital employed), and the return on equity (net worth) at different levels of financial leverage needs to be analyzed.

The relation between ROI and ROE is as follows:

$$ROE = \{ROI + (ROI - k_d)\ D/E\}\ (1 - t).$$

Where,

ROE is the return on equity

ROI is the return on investment

k_d is the cost of debt (pre-tax)

D is the debt component in the total capital

E is the equity component in the total capital

t is the tax rate.

The ROE of an unlevered firm (or a firm with a lower leverage) is higher than the ROE of a levered firm (or a firm with a higher leverage) when the ROI is lower than the cost of debt. Conversely, the ROE of a levered firm is higher than the ROE of an unlevered firm (or a firm with lower leverage) when the ROI is higher than the cost of debt. The ROE will remain constant irrespective of the levels of leverage if the ROI is equal to the cost of debt.

Illustration 6

Beta and Theta are identical firms except for their capital structure.

Particulars	Beta	Theta
Debt	–	500
Equity	1000	500
Total Investment	1000	1000
Tax Rate	40%	40%
Cost of Debt	–	10%

We shall examine the impact on ROE of both the firms if the ROI is 5%, 10% and 20%.

Particulars	Beta			Theta		
ROI	5%	10%	20%	5%	10%	20%
EBIT	50	100	200	50	100	200
Interest	0	0	0	50	50	50
PBT	50	100	200	0	50	150
Tax	20	40	80	0	20	60
PAT	30	60	120	0	30	90
ROE	3%	6%	12%	0%	6%	18%

It can be observed that firm Beta is better off (generates a higher ROE) when the ROI at 5% is less than the cost of debt at 10%. On the other hand, firm Theta is better off when the ROI at 20% is higher than the cost of debt at 10%. When the ROI is equal to the cost of capital, both the firms generate an identical ROE of 6%.

Strategic Determinants of the Capital Structure

The capital structure should be designed with the aim of maximizing the market valuation of the firm in the long run. The important determinants in designing capital structure are:

Type of Asset Financed: Ideally short-term liabilities should be used to create short-term assets and long-term liabilities for long-term assets. Otherwise a mismatch develops between the time to extinguish the liability and the asset generation of returns. This mismatch may introduce elements of risks like interest rate movements and market receptivity at the time of refinancing.

Nature of the Industry: A firm generally relies more on long-term debt and equity if its capital intensity is high. All short-term assets need not be financed by short-term debt. In a non-seasonal and non-cyclical business, investments in current assets assume the characteristics of fixed assets and hence need to be financed by long-term liabilities. If the business is seasonal in nature, the funding needs at seasonal peaks may be financed by short-term debt. The risk of financial leverage increases for businesses subject to large cyclical variations. These businesses need capital structures that can buffer the risks associated with such swings.

Degree of Competition: A business characterized by intense competition and low entry barriers faces greater risk of earnings fluctuations. The risks of fluctuating earnings can be partially hedged by placing more weightage for equity financing. Reductions in the levels of competition and higher entry barriers

decrease the volatility of the earnings stream and present an opportunity to safely and profitably increase the financial leverage.

Obsolescence: The key factors that lead to technological obsolescence should be identified and properly assessed. Obsolescence can occur in products, manufacturing processes, material components and even marketing. Financial maneuverability is at a premium during times of crisis triggered by obsolescence. Excessive leverage can limit the firm's ability to respond to such crisis. If the chances of obsolescence are high, the capital structure should be built conservatively.

Product Life Cycle: At the venture stage, the risks are high. Therefore equity, being risk capital *per se*, is usually the primary source of finance. The venture cannot assume additional risks associated with financial leverage. During the growth stage, the risk of failure decreases and the emphasis shifts to financing growth. Rapid growth generally signals significant investment needs and requires huge sums of capital to fuel growth. This may entail large doses of debt and periodic induction of additional equity capital. As growth slows, seasonality and cyclicality become more apparent. As the business reaches maturity stage, leverage is likely to decline as cash flows accelerate.

Financial Policy: Designing an optimum capital structure should be done in response to overall financial policy of the firm. The management may have evolved certain financial policies like maximum debt-equity ratio, predetermined dividend pay-out, minimum debt service coverage level, etc. Designing of capital structure will become subservient to such constraints and the solution provided may be suboptimal.

Past and Current Capital Structure: The proposed capital structure is often determined by past events. Prior financing decisions, acquisitions, investment decisions, etc. create conditions which may be difficult to change in the short run. However, in the medium- to long-term, capital structure can be changed by issuing or retiring debt, issuing equity, equity buy-backs (when permitted), securitization, altering dividend policies, changing asset turnover, etc.

Corporate Control: Firms which are vulnerable to takeover are averse to further issuance of equity as it can result in the dilution of the ownership stake. Such firms place an excessive reliance on debt and retained earnings. Firms with 'strong' management (having controlling stake) are unlikely to have reservations over further issue of equity.

Credit Rating: The market assigns a great deal of weightage to the credit rating of a firm. Hence, obtaining and maintaining a target rating has become imperative for most firms. Rating agencies maintain constant watch to identify any signs of deterioration in the creditworthiness of the company. The market reacts

negatively to any downgrading of the rating of a firm. This may result in a denial of access to capital either due to the provision of any law/regulations (companies below a certain rating cannot issue CPs) or by the market forces (investors may not subscribe to debt with low ratings). The possibility of downgrading of rating due to the increase in leverage should be factored in while making capital structure decisions.

2.15 Summary

- Capital structure theories analyze the proportion of debt and equity in the capital structure of a firm. There are conflicting views regarding the impact of capital structure on the valuation of a firm.
- Net income approach contends that the valuation of the firms can be increased by the application of leverage, provided the cost of equity is greater than the cost of debt.
- Net operating income approach assumes that the value of the firm remains constant irrespective of the degree of leverage.
- Traditional approach contends that the cost of capital is dependent on the capital structure of the firm.
- MM approach postulates that the composition of the capital structure is an irrelevant factor in the market valuation of a firm.
- Modigliani and Miller explain the arbitrage process to support their view that the value of a levered firm cannot be higher than the value of an unlevered firm and vice versa.
- The imperfections that can affect the capital structure are taxation, bankruptcy costs, difference between home-made leverage and corporate leverage and agency costs.
- Trade-off theory of financing assumes that the firm attempts a tradeoff between the size of the tax shelter and the cost of financial distress.
- The major determinants of capital structure are type of asset financed, nature of the industry, degree of competition, obsolescence, product life cycle, financial policy, past and current capital structure, corporate control and credit rating.

2.16 Glossary

Capital Structure means the composition of a firm's long-term financing consisting of equity, preference capital, and long-term debt.

Cost of Capital implies the minimum rate of return the firm must earn on its investments in order to satisfy the expectations of investors who provide the funds to the firm. It is often measured as the weighted arithmetic average of the cost of various sources of finance tapped by the firm.

Cost of Debt is the rate that has to be received from an investment in order to achieve the required rate of return for the creditors.

Costs of Financial Distress means the dead weight costs when the firm's financial position weakens, even if the firm does not declare bankruptcy.

EBIT is a measure of company's earning power on its operating activities which is equal to earnings before deduction of interests and income taxes. It is also referred to as operating profit.

EPS is the earning per share of a firm, which is calculated by dividing the equity earnings (Profit After Tax- Preference Dividend) by the number of outstanding shares of the firm.

In financial context, Leverage means use of various financial instruments to increase the potential return on an investment. A firm with debt in its capital mix is referred to as a levered firm whereas a zero debt or a pure equity firm is referred to as an unlevered firm.

Interest Tax Shield: The tax saving due to leverage is known as Interest Tax Shield.

Optimal Capital Structure is referred to the capital structure that minimizes the firm's composite cost of capital (maximizes the common stock price) for raising a given amount of funds.

Return on Equity is the return earned on equity capital of the firm, also known as return on net-worth. Equity or Net-worth is the sum of Equity capital and reserves and surplus less the miscellaneous expenditure not written off. It is calculated as:

ROE = PAT/ Networth

2.17 Suggested Readings / Reference Material

1. Richard Brealey and Stewart Myers and Franklin Allen and Alex Edmans (2023). Principles of Corporate Finance. 14th Edition, McGraw Hill India
2. Stephen A. Ross, Randolph Westerfield (Author), & Jordon (2018). Fundamentals of Corporate Finance. 12th edition, McGraw Hill College
3. Prasanna Chandra (2020). Strategic Financial Management: Managing for value creation. 2nd edition, McGraw Hill
4. Hubbard & Obrien (2022). Mony, Banking and Financial System. 4th edition, Pearson Education
5. Kalyani Karna (2019). Strategic Financial Management. 1st edition. Corporate Plus Publications Private Limited
6. Edward I Altman (2019). Corporate Financial Distress, Restructuring and Bankruptcy. 4th edition, Wiley

7. Rick Mann & David Tarrant (2020). Strategic Finance for Strategic Leaders: The First Five Tools. Clarion strategy publishing
8. Sheeba Kapil (2021). Financial Valuation and Modelling. Wiley

2.18 Suggested Answers

Self-Assessment Questions – 1

a. When a firm finances a portion of its operations by debt, it is said that the firm employs financial leverage or in other words, it is a levered firm. If a firm does not employ debt, it is said that it is an all-equity firm and has no leverage.

b. The theories of capital structure are based on the following premises:

   i. There are no corporate or personal taxes. Thus the impact of tax shields associated with debt is abstracted.

   ii. There are no bankruptcy costs. The assets of a bankrupt company can be sold at their economic value without incurring any liquidating and legal expenses. This eliminates any bias in favor of an unlevered firm due to existence of bankruptcy costs.

   iii. The firm is allowed to issue and repurchase any amount of debt or equity. These transactions can be executed instantaneously without any time lag. The securities are infinitely divisible.

   iv. The composition of the capital structure can be changed without any transaction costs like issue expenses and underpricing.

   v. The firm consistently follows the policy of 100% dividend pay-out. Thus the possible impact of dividend policy on the valuation of the firm is eliminated.

   vi. All the investors in the market have homogenous expectations of the expected future earnings of all the firms. The expected value of the subjective probability distributions of the anticipated future earnings (operating income) is identical to all investors.

   vii. The operating earnings of the firm is expected to remain constant for all future periods. Hence there is neither any growth nor decline in the expected future earnings.

c. The traditional approach contends that there is an optimal capital structure for every firm. The theory postulates that the cost of debt (k_d) remains constant up to a certain degree of leverage and rises gradually thereafter. The cost of equity (k_e) rises at a slow pace up to a certain degree of leverage and increases rapidly thereafter. The cost of capital (k_o) initially declines due to moderate application of leverage. After a certain degree of leverage, the increase in the cost of equity is more than the benefits obtained due to

cheaper debt. At this point the cost of capital begins to rise. The rise in cost of capital becomes much more sharper, once the cost of debt begins to rise. The point where k_o is the lowest is the optimal capital structure point.

Self-Assessment Questions – 2

a. An imperfect capital market has transaction costs, taxes, possible bankruptcy (which involves bankruptcy costs and causes the interest rate to vary directly with risk), and possible conflicts of interest among stockholders, bondholders, and management (giving rise to agency costs).

b. A levered firm enjoys tax advantages because tax laws permit it to deduct any interest paid as an expense for tax purposes. This tax advantage increases the levered firm's average cash flow. Unleveraged firm has to pay more tax than levered firm. Capital structure, therefore, is relevant because, other things being equal, the more leverage a firm employs, the higher the firm's value.

2.19 Terminal Questions

A. Multiple Choice Questions

1. The Modigliani and Miller argument is that
   a. The value of the levered firm will be more than that of the unlevered firm.
   b. The value of the unlevered firm will be more than the levered firm.
   c. The capital structure has no relevance for the value of the firm.
   d. There are transaction costs.
   e. Investors are not rational
2. Business risk refers to
   a. Variability of sales.
   b. Variability of the market value of the firm.
   c. Variability of cost of raw materials.
   d. Variability of the selling price of the products.
   e. Variability in earnings.
3. The overall capitalization rate of a firm is 12%, cost of debt is 10% and debt-equity ratio is 0.5. What will be the expected yield on the equity of the firm according to proposition II of Modigliani and Miller?
   a. 12%
   b. 13%
   c. 14%
   d. 22%
   e. 25%.

4. Which of the following is the ultimate objective of any company?
   a. Profit maximization
   b. Wealth maximization
   c. Sales maximization
   d. Improving market share
   e. Improving its reputation.
5. Which of the following long-term sources of finance puts maximum restraint on managerial freedom?
   a. Retained earnings.
   b. Equity capital.
   c. Preference capital.
   d. Debenture capital.
   e. Term loans.

B. Descriptive Questions

1. How do agency costs affect the capital structure?
2. Explain the Net Income approach to the capital structure.
3. What are the strategic determinants of capital structure?

2.20 Answers to Check Your Progress Questions

1. (c) The capital structure has no relevance for the value of the firm.

The Modigliani and Miller argument is that the capital structure has no relevance for the value of the firm.

2. (e) Variability in earnings.

Business risk refers to variability in earnings.

3. (b) 13%.

According to proposition II of Modigliani and Miller, the expected yield on the equity of the firm will be 13%.

4. (b) Wealth maximization

The ultimate objective of any company is wealth maximization.

5. (d) Debenture capital

Debenture capital puts maximum restraint on managerial freedom.

Unit 3

Dividend Policy

Structure

"Do you know the only thing that gives me pleasure? It's to see my dividends coming in."

- John D. Rockefeller

3.1 Introduction

The dividend policy of a firm determines what proportion of earnings is paid to shareholders by way of dividends and what proportion is ploughed back in the firm for reinvestment purpose. Thus, the dividend policy affects both – the long-term sources of finance and the market price of shares. A firm should treat its dividend policy as relevant because shareholders bother a great deal about the dividends. As a finance manager, you must carefully evaluate the circumstances and the environment in which the firm is operating in order to determine its dividend policy.

In the previous unit, we discussed the capital structure. Recognizing the importance of dividend policy in the capital structure, this unit highlights

dividend decisions and some models which help in arriving at good dividend policy decisions. In addition to dividend models, the strategic determinates of dividend policy and financial signaling are covered in this unit.

3.2 Objectives

After going through the unit, you should be able to:

- Explain the relevance of dividend policy of a firm
- Recognize the Strategic Determinants of Dividend Policy
- Analyze the effect of Dividend Taxes on Investment Choices
- Identify Information Asymmetry and Signaling with Dividends
- Explain different models of dividend policy

3.3 Dividend Decisions

Dividends refer to that portion of a firm's net earnings, which are paid out to the shareholders. Since dividends are distributed out of profits, the alternative to the payment of dividend is the retention of earnings/profits. The retained earning constitutes an easily accessible important source of financing, for the investment requirements of the firm. There is, an inverse relationship between retained earnings and cash dividend: larger retention, lesser dividends; smaller retention, larger dividends.

The dividend policy of a firm refers to the views and practices of the management with regard to distribution of earnings to the shareholders in the form of dividends. The portion of the earnings which is undistributed is called retained earnings. The retained earnings are often used as means of financing the capital expenditure of the firm. The higher the dividend pay-out, the lower will be the retained earnings. This would entail dependence on other sources of financing by the firm. Hence the dividend policy has implications on the financing decision of the firm. As the ultimate objective of any company is to maximize the wealth of the shareholders, the impact of dividend policy on the market valuation of the firm needs to be analyzed.

Example: Dividend Declaration by Indian Oil Corporation

IOC declared dividend of ₹ 12 per share in FY21 which is 10.4% on market price. Out of the total net profit of ₹ 24,184.10 crore, ₹ 20,786 crore was the retained earnings transferred to reserves and surplus which works to 85% and only 15% of NP was disbursed towards dividend payment to shareholders. Dividend decisions are based on the company goals.

Source: https://economictimes.indiatimes.com/markets/stocks/news/losing-sleep-over-low-fd-rates-these-8-stocks-come-with-a-dividend-yield-of-up-to-10/indian-oil-corporation-ioc/slideshow/83532188.cms dated 15th June 2021. Accessed on 5th July, 2022

3.3.1 Dividend Pay-Out Models

The following are the various models which analyze the relationship between the dividends and the stock prices.

Graham-Dodd Model

This model postulates that the market price of a share is a function of its dividends and earnings. However, the model assigns higher weightage to dividends as against retained earnings. The equity valuation model proposed by them is as follows:

$$P = m (D + E/3)$$

Where,

P is the market price per share

m is the multiplier

D is the dividend per share

E is the earnings per share.

The earnings of a company is equal to the sum of dividend and retained earnings. Hence,

$$E = D + R$$

Where,

R represents the retained earnings.

In the above model if E is replaced with (D + R).

$$P = m\left(D + \frac{D+R}{3}\right) = m\frac{(4D+R)}{3}$$

The model thus gives 4 times more weightage to dividends in relation to retained earnings. It may be noted that the weightages are subjective and are not derived from any empirical data. While the weightages assigned are debatable, the essence of the theory is that the market is overwhelmingly in favor of liberal dividend

pay-out. The dividend policy has a critical impact on the market valuation of the firm.

Illustration 1

Alpha Ltd. has recorded an EPS of ₹6. The company follows a fixed dividend pay-out ratio of 75%. If the multiplier for the industry is 12, compute the expected market price for the share based on the Graham-Dodd Model.

Solution

The dividend per share is ₹6 × 0.75 = ₹4.50

Based on the Graham-Dodd Model, the expected market price would be

P = m(D + E/3) = 12(4.50 + 6/3) = ₹78 per share.

Walter Model

The model devised by Prof. James Walter considers dividend as one of the factors determining the market valuation. It also considers the returns earned by the firm on its retained earnings vis-á-vis the cost of capital of the firm. The model says that the market price of a share is the sum of the present value of the future stream of dividends and the present value of the future stream of returns from the retained earnings.

The model makes the following assumptions:

- The firm is a going concern and has a perpetual life span.
- The only source of finance available to the firm is retained earnings. The firm does not have any alternative means of financing.
- The cost of capital and the return on investment are constant throughout the life of the firm.

According to the model, the market valuation of its shares is

$$P = \frac{D + (E - D)r/k}{k}$$

Where,

P is the market price per share

D is the dividend per share

E is the earnings per share

r is the return on investments

k is the cost of capital.

The model implies that a firm should have 100% dividend pay-out if the IRR on its investments is less than its cost of capital. Conversely, a firm which is able to generate higher IRR on its investments in relation to its cost of capital should retain its entire earnings and no dividends should be declared. The dividend policy of a firm is irrelevant if the IRR is equal to its cost of capital.

Illustration 2

Beta Ltd. paid a dividend of ₹4 per share. The company follows a fixed dividend pay-out ratio of 50%. The company earns a return of 18% on its investments. The cost of capital to the company is 12%. Determine the expected market price of the share using the Walter model.

Solution

The EPS of the company is

$$EPS = \frac{\text{Dividend}}{\text{Pay-out Ratio}} = \frac{\text{Rs.4.00}}{0.5} = ₹8.00 \text{ per share}$$

According to the Walter model

$$P = \frac{D + (E - D)r/k}{k} = \frac{4.00 + (8.00 - 4.00)0.18/0.12}{0.12} = ₹83.33 \text{ per share.}$$

Gordon Model

The Gordon model values the share by capitalizing its future stream of dividends. Myron Gordon maintains that the growth rate of a firm is a product of its retention ratio and the return on its investments. The assumptions of the model are similar to those of the Walter model:

- The firm is a going concern and has a perpetual life span.
- The only source of finance available to the firm is retained earnings. The firm does not have any alternative means of financing.
- The cost of equity and the return on investment are constant throughout the life of the firm.
- The cost of equity is greater than its growth rate.

The model is expressed as:

$$P_0 = \frac{Y_0(1-b)}{k - br}$$

Where,

P_0 is the market price per share at the beginning of Year 0

Y_0 is the expected earnings per share for Year 0

b is the retention ratio (retained earnings/total earnings)

r is the return on investments

k is the cost of equity.

The following implications can be drawn from the model:

- When the cost of equity exceeds the return on investment, the pay-out ratio should rise to increase the market price;
- When the cost of equity equals the return on investment, the changes in the pay-out ratio will have no impact on the market price;
- When the cost of equity is less than the return on investment, the pay-out should be reduced to increase the market price.

Illustration 3

Gamma Ltd. follows a policy of fixed dividend pay-out of 75%. The EPS for the previous year is ₹4 per share and the same is expected to grow by 25% during the current year. The firm earns a return of 20% on its investment. The cost of equity of the company is 15%. Compute the value of the share using the Gordon Model.

Solution

The expected EPS is

₹4.00 × 1.25 = ₹5.00 per share

The retention ratio of the firm is calculated as

Retention Ratio = 1 – Pay-out Ratio = 1 – 0.75 = 0.25

According to the Gordon Model, the expected value of the share is

$$P_0 = \frac{Y_0(1-b)}{k-br} = \frac{5.00 \times 0.75}{0.15-(0.25 \times 0.20)} = ₹37.50 \text{ per share.}$$

The Residual Dividend Theory

The residual dividend theory focuses on the firm's internal need for capital. Earlier we mentioned that dividends reduce retained earnings, and therefore can force the sale of additional stock when a company needs equity capital for projects. Further, we noted that equity from new stock is more expensive than retained earnings because of flotation costs.

Under the residual dividend concept, companies recognize the cost effectiveness of retained earnings, and fund the equity portion of all viable projects with earnings before paying any dividends. Anything leftover is paid out as a dividend. The term "residual" comes from this leftover status of the dividend.

The residual theory has an intuitive appeal, but it is not the way most companies work. Most management sees a value in dividends and set them aside first rather than last. Further, most companies can come up with a virtually unlimited number of capital projects that look good on paper. As a result, a firm that truly adhered to the residual theory might never be a dividend.

Activity 1

a. State relationship between retained earnings and cash dividend.

……

……

……

b. In accordance to Walter Model, what would a firm do, when the return on investment is more than cost of equity capital?

……

……

……

3.4 Strategic Determinants of Dividend Policy

Some of the key factors which influence dividend pay-out of a firm are delineated below:

Liquidity: Traditional theories have postulated that a dividend decision is solely a function of the earnings of the firm. While earnings are an important determinant for the dividend decision, the role of liquidity cannot be ignored. Dividend pay-out entails cash outflow for the firm. Hence the quantum of dividends proposed to be distributed critically depends on the liquidity position of the firm. In practice, firms often face cash crunch in spite of having good earnings. Such firms may not be in a position to declare dividends despite their profitability.

Investment Opportunities: Another key determinant to the dividend decision is the requirement of capital by the firm. Normally firms tend to have low pay-out if profitable investment opportunities exist and conversely firms tend to resort to high pay-outs if profitable investment opportunities are lacking. Generally, firms operating in industries which are in the nascent and growth phases of the product life cycle are characterized by high dependence on retained earnings. On the other hand, firms operating in industries which are in the maturity and decline stages normally distribute a larger proportion of their earnings as dividends.

Access to Finance: A company which has easy access to external sources of finance can afford to be more liberal in its dividend pay-out. The dividend policy of such firms is relatively independent of its financing decisions. Firms having little or no access to external financing have rather limited flexibility in their dividend decisions.

Flotation Costs: Issue of securities to raise capital in lieu of retained earnings involves flotation costs. These costs include fees payable to the merchant bankers, underwriting commission, brokerage, listing fees, marketing expenses, etc. Moreover, smaller the size of the issue, higher will be the flotation costs as a percentage of amount mobilized. Further there are indirect flotation costs in the form of underpricing. Normally issues of shares are made at a discount to the prevailing market price. The cost of external financing has an influence on the dividend policy.

Corporate Control: Further issue of shares (unless done through rights issue) results in dilution of the stake of the existing shareholders. On the other hand, reliance on retained earnings has no impact on the controlling interest. Hence companies vulnerable to hostile takeovers prefer retained earnings rather than fresh issue of securities. In practice, this strategy can be a double edged sword. The niggardly pay-out policy of the company may result in low market valuation of the company vis-á-vis its intrinsic value. Consequently, the company becomes a more attractive target and is in the danger of being acquired.

Investor Preferences: The preference of the shareholders has a strong influence on the dividend policy of the firm. A firm tends to have a high pay-out ratio if the

shareholders have a strong preference towards current dividends. On the other hand, a firm resorts to retained earnings if the shareholders exhibit a clear tilt towards capital gains.

Restrictive Covenants: The protective covenants in bond indentures or loan agreements often include restrictions pertaining to distribution of earnings. These conditions are incorporated to preserve the ability of the issuer/borrower to service the debt. These covenants limit the flexibility of the company in determining its dividend policy.

Taxes: The incidence of taxation on the firm and the shareholders has a bearing on the dividend policy. India levies a 10% tax on the amount of distributed profits. This tax is a strong fiscal disincentive on dividend distribution. These dividends are totally tax-free in the hands of the shareholders. The capital gains (long-term) are taxed at 20%.

Dividend Stability: The earnings of a firm may fluctuate wildly between various time periods. Most firms do not like to have an erratic dividend pay-out in line with their varying earnings. They try to maintain stability in their dividend policy. Stability does not mean that the dividends do not vary over a period of time. It only indicates that the previous dividends have a positive correlation with the current dividends. In the long run, the dividends have to be invariably adjusted to synchronize with the earnings. However, the short-term volatility in earnings need not be fully reflected in dividends.

Example: RIL Board Recommends Dividend of ₹ 8 Per Equity Share of ₹ 10 for FY22

One of the key factors that influences dividend pay-out of a firm is liquidity. RIL's board recommended a dividend of ₹ 8 per equity share of ₹ 10 each for the financial year ended March 31, 2022. The company declared the Q4FY22 profit which was ₹ 16,203 showing an increase of 22.4% compared to ₹ 13,227 crore an year ago in the same period while the consolidated revenue jumped by 36.79% to ₹ 211,887 crore in Q4FY22 against ₹ 154,896 crore in same quarter last year. Similarly for the full fiscal 2021-22, RIL declared a net profit of ₹ 60,705 crore and revenue of ₹ 7.92 lakh crore. The company was able to pay high dividends due to excellent liquidity position in view of good profits.

Source: https://www.livemint.com/companies/news/ril-board-recommends-dividend-of-rs-8-per-equity-share-for-fy22-11651847596066.html dated 6th May 2022. Accessed on 5th July, 2022

3.4.1 Corporate Dividend Behavior

John Lintner made an empirical study on the corporate dividend behavior. He developed a quantitative model to express the dividend behavior.

$$D_t = crEPS_t + (1 - c)\, D_{t-1}$$

Where,

D_t is the dividend per share for the time period t;

c is the weightage given to current earnings by the firm;

r is the target pay-out rate;

EPS_t is the earnings per share for the time period t; and

D_{t-1} is the dividend per share for the time period t – 1.

The Lintner model states that the current dividend of a firm depends on its current earnings and its past dividends. The degree of dividend stability can be deduced from the weightages in the model. A conservative firm which prefers a high level of dividend stability will assign relatively insignificant value to c in the above equation. On the other hand, an aggressive firm which does not attach much significance to past dividends would give a high value to c in the equation. The dividends of such firms would be more reflective of their current earnings. He concludes that "On the evidence so far available, it appears that our basic model incorporates the dominant determinants of corporate dividend decisions, that these have been introduced properly and that the resulting parameters are reasonably stable over long periods involving substantial changes in many external conditions."

3.4.2 Dividend Preference

The dividend preference theory maintains that generally stockholders prefer receiving dividends to not receiving them. The argument is based on the uncertainty of the future. It asserts that stockholders prefer current dividends to future capital gains, because something paid today is more certain to be received than something expected in the future. The idea can be put in somewhat cynical terms by saying that stockholders do not trust management to use the cash on hand today to grow the firm into something larger and more valuable later on.

Notice that this is not a time value of money argument. It does not say people prefer the dividend today because it is worth more. It says they would rather have it now to be sure of getting it. The argument is often called the bird in the hand theory from the old cliché, "A bird in the hand two in the bush" (because you may not catch either of those in the bush).

The reasoning has one rather substantial flaw. If stockholders are concerned about reinvesting dividend money in a firm because they are afraid it will be lost, why have they invested in that firm in the first place?

3.4.3 Dividend Aversion

The dividend aversion position asserts that investors generally prefer that companies not pay dividends in order to enhance stock prices later on. The argument is based on capital gains taxes, so its persuasiveness depends on current tax law.

The logic underlying the idea is that dividends are taxed at ordinary income rates while capital gains are taxed at lower "capital gains rates". The current dividend is ordinary income, but the appreciated price represents a capital gain when the stock is sold. Hence the tradeoff between a dividend today and a higher price later has to be modified to reflect that fact that, after taxes, investors get to keep more of the appreciation than the dividends. That clearly makes the deferred gain more desirable.

There are two other less obvious tax benefits associated with capital gains that support a dividend aversion argument. First, taxes on capital gains are deferred until stock is sold. Second, all taxes on capital gains are avoided if stock is not sold when an investor dies. Then the shares pass to the heirs with a tax basis equal to their current market value, so the price appreciation up to that date is never taxed.

3.5 The Irrelevance of Dividends and Stock Repurchases in an Ideal Capital Market

The Miller and Modigliani (1961) proposition of dividend irrelevance in an ideal capital market put forth the argument that, in an ideal capital market, dividend policy is irrelevant as long as the firm's capital investments and debt policy are kept constant. Dividend payments are simply financed over time by a combination of excess retained earnings and, as per requirement, new equity financing. Let us now try to see that not only is the dividend irrelevant but also the stock repurchases are irrelevant in an ideal capital market.

Example: 10 Indian Companies with the Fastest Growth in Dividend Pay-outs

Dividend payments are based on a combination of excess retained earnings and new equity financing.

Britannia, the biscuit manufacturing company with a robust distribution network of over 3,500 catering to more than 24 lakh retail outlets across India, was paying dividends since 1995 without any break for the past 26 years and over the last half a decade, the dividend pay-out has grown at a CAGR of 98.7%. The dividend per share in 2019, 2020 and 2021 were ₹ 14.97, ₹ 34.94 and ₹ 169.72 respectively and the percentage of growth was 140.3, 133.4 and 385.7 respectively and the average dividend pay-out ratio of around 68% over the last five years. Britannia is a part of the Wadia Group and in existence since 1892 and one of India's oldest existing companies. Growth oriented companies retain more earnings and pay less dividend while more mature companies resort to dividend pay outs similar to Britannia.

Source:https://www.equitymaster.com/detail.asp?date=01/10/2022&story=6&title=10-Indian-Companies-with-the-Fastest-Growth-in-Dividend-Payouts dated 10th January 2022. Accessed on 5th July, 2022.

The Basic Argument

Let us assume here that the entrepreneur of a new firm has a profitable single-period capital investment project that requires an initial investment of INV_0 at time zero. The project's expected return is r*, which is greater than the discount rate applicable to the project's expected future cash flow, r. The present value of the project is

$$PV = \frac{(1+r^*)INV_0}{(1+r)} \quad \ldots (1)$$

And the project's Net Present Value (NPV) is

$$NPV = -INV_0 + PV > 0. \quad \ldots (2)$$

Let us now consider the basic argument of the model in the context of the following cases.

Situation where there is No Dividend

We initially assume that, to finance the project, the entrepreneur sells some combination of debt and outside equity securities (owned by the outside share holders), denoted as $\Delta DEBT_0$ and $\Delta STOCK_0$ respectively. So the initial investment of INV_0 at time 0 equals:

$$INV_0 = \Delta DEBT_0 + \Delta STOCK_0 \quad \ldots. (3)$$

In an ideal market, the value of the debt and equity securities sold will be equal to the proceeds received.

Situation that includes a Dividend Payment

Let us denote the value of the entrepreneur's share of the firm's equity as EQ_0, then

$EQ_0 = NPV.$

The entrepreneur could sell debt and equity securities sufficient not only to finance the project, but also to pay himself an immediate dividend, which is denoted as DIV_0,

$$INV_0 + DIV_0 = \Delta DEBT_0 + \Delta STOCK_0 . \quad \ldots (4)$$

In this case, the value of the entrepreneur's equity is

$$EQ'_0 = PV - \Delta DEBT_0 - \Delta STOCK_0 - DIV_0 = NPV - DIV_0$$

The entrepreneur also receives the dividend DIV_0, so his wealth is the same as in the situation where there was no dividend

$$(\text{i.e., } EQ'_0 + DIV_0 = EQ_0) .$$

The constraint on the total value of securities that can be sold is that the sum of $\Delta DEBT_0$ and $\Delta STOCK_0$ cannot exceed the present value (PV) of the project's expected pay-off:

$$\Delta DEBT_0 + \Delta STOCK_0 \leq PV \quad \ldots (5)$$

The dividend is correspondingly constrained:

$$DIV_0 \leq PV - INV_0 = NPV \quad \ldots (6)$$

Again, an arbitrage proof of the above argument is analogous to the proof of M&M Proposition I.

Findings of the above Proof

The above analyses illustrate the two main postulates of Miller and Modigliani that they made in their paper. They are:

a. The higher the dividend pay-out in any period, the more the new capital that must be raised from external sources to maintain any desired level of investment.

b. The irrelevance of dividend policy, given investment policy, is 'obvious, once you think of it.'

A Numerical Illustration

Suppose the founder of a new firm has a single-period project that requires an initial investment of INV_0 = \$10 million. The project's expected return is r* = 30%, and the appropriate discount rate is r = 12%. The percent value of the project's expected pay-off is calculated as follows:

$$PV = \frac{(1+r^*)INV_0}{(1+r)} = \frac{1.3(Rs.10\,million)}{(1.12)} = ₹11.607 \text{ million},$$

And the project's NPV is

$$NPV = -₹10 \text{ million} + ₹11.607 \text{ million} = ₹1.607 \text{ million}.$$

If the entrepreneur sells just enough debt and equity securities to finance the project, say, $\Delta DEBT_0$ = ₹4 million and $\Delta STOCK_0$ = ₹6 million, then he would retain equity with a value of

$$EQ_0 = ₹1.607 \text{ million } (= ₹11.607 \text{ million} - ₹10 \text{ million}).$$

Extending the Argument to Include Stock Repurchases

Miller and Modigliani's dividend irrelevance argument can be further extended to show the irrelevance of stock repurchases. Let us consider a seasoned firm that has just received net cash flows from its current operations through date "t", denoted as NCF_t. For the sake of simplicity, let us assume that the firm's assets temporarily consist only of cash in the amount of NCF_t. The firm has decided to make capital investments that require outlays that amount to INV_t.

In addition, the firm could issue:

- Debt securities in the amount, or
- Issue equity securities in the amount, or
- Repurchase shares in the amount of REP_t, or

- Pay a dividend in the amount of DIV_t.

Regarding these choices, the firm must adhere to the following cash flow constraint for period t, which is organized to solve the focal variables of our discussions, dividends and stock repurchases,

$$NCF_t - INV_t + \Delta DEBT_t + \Delta STOCK_t = DIV_t + REP_t \quad \ldots (7)$$

As long as the firm does not alter its commitment to capital spending in the amount of INV_t, any combination of values of the other variables that obeys Equation 7 results in the same wealth for the firm's shareholders. That is, both dividend and stock repurchase policies are irrelevant.

3.6 Modigliani-Miller Position

Franco Modigliani and Merton Miller propound that the dividend pay-out is an irrelevant factor in the market valuation of firms. They assert that the value of shares is solely determined by "real" considerations i.e., the earning power of the firm and its investment policy. The distribution of earnings in the form of dividends has no bearing on the valuation of the firm. The proportion in which the earnings are split between dividends and retained earnings has no affect on the wealth of the shareholders.

Example: High Dividend-paying PSU (Public Sector Units) Stock

High dividend-paying PSU (Public Sector Units) stocks for the year 2020 included Power Trading Corporation of India - 9.27%, Oil India – 9.10%, Coal India - 8.38%, Power Finance Corporation – 8.33%, HUDCO - 6.3% etc. These companies have been earning considerable revenue and registering good profits, but maintained single digit dividends. Shareholders retain the stocks in spite of average dividend payment by these PSUs compared to public listed companies. The proportion in which the earnings are split between dividends and retained earnings has no affect on the wealth of the shareholders.

Source:https://tavaga.com/blog/high-dividend-yield-stocks-are-they-worth-investing-in/#:~:text=High%20dividend%20yield%20stocks%20blue,considered%20blue%2Dchip%20in%20nature, dated 18th January 2021. Accessed on 5th July, 2022

Assumptions

The MM hypothesis is constructed on the assumption of an ideal economy. An ideal economy is characterized by perfect capital markets, rational behavior and perfect certainty.

Perfect Capital Markets has a large number of issuers and investors. The transactions of no single participant can have an appreciable impact on the market prices. Information is costless and is equally accessible to all. There are no transaction costs in the form of brokerage fees, transfer taxes, etc., for buying and

selling of securities. There are no flotation costs like issuing costs and underpricing, to the issuer, for the issue of new securities. There are no tax differentials between distributed and undistributed profits or between dividends and capital gains.

Rational Behavior means that investors always prefer more wealth to less. Further they are indifferent as to whether a given increment to their wealth takes the form of dividend flow or an increase in the value of their shares. Modigliani and Miller extended the usual postulate of rational behavior by introducing the concept of symmetric market rationality.

The Symmetric Market Rationality hypothesis is based on the premise that every investor also imputes rationality to the market. He assumes that all other investors are rational and they, in turn, also impute rationality to the market. This concept not only covers the choice behavior of individuals but also their expectations of choice behavior of others. The symmetric market rationality cannot be deduced from individual rational behavior. If an ordinarily rational investor has good reasons to believe that other investors would not behave rationally, then it might be rational for him to adopt a strategy he would have otherwise rejected as irrational.

This hypothesis thus rules out the possibility of "speculative bubbles", wherein an otherwise rational investor buys an overpriced security (too expensive in relation to its expected long-term return to merit its addition to his portfolio) in the expectation that he can resell it at an even more inflated price before the bubble bursts. Thus Symmetric Market Rationality hypothesis extends the concept of rationality to the market as a whole.

Dividends and Market Valuation

The substance of the MM approach is that the dividend payments have no impact either on the valuation of the firm or the wealth of the shareholders. When a firm declares dividends it foregoes retained earnings to the extent of the dividend amount. As the investment needs of a firm are taken as a constant, the firm finances the amount of retained earnings foregone, by issuing new shares. MM asserts that the sum of discounted value of the shares after the financing and the amount of dividends paid is exactly equal to the market value of the share before the payment of dividends. In other words, the fall in the stock price offsets the amount of dividends received. There is no change in the overall wealth of the shareholders. The shareholders are therefore indifferent between dividend payments and retained earnings. Further, while the market price of each share may decline, the number of shares outstanding increases due to the fresh issue of equity. Therefore, the market capitalization of the firm remains constant. Hence dividend policy of a firm is irrelevant.

The current market price of a share is the sum of the present values of the dividend paid and the market price at the end of the investment horizon t_1. The market price can be represented as:

$$P_0 = \frac{D_1 + P_1}{1 + p} \quad \ldots (8)$$

Where,

P_0 is the market price per share at the beginning of Year 0.

D_1 is the expected dividend per share for Year 1.

P_1 is the market price per share at the end of Year 1.

p is the capitalization rate for the firms in that risk class.

If m is the number of shares issued at the end of the period at a price of P_1 (the prevailing market price), the above equation can be rewritten as:

$$nP_0 = \frac{nD_1 + (n + m)P_1 - mP_1}{1 + p} \quad \ldots (9)$$

where,

n is the number of shares at the beginning of the period.

The above equation signifies that the total valuation of the firm at the beginning of the period (t_0) is the sum of present value of the dividend and the market value of the outstanding shares at t_1 less the total value of the new shares issued.

The total value of the new shares issued is

$$mP_1 = I - (X - nD_1) \quad \ldots (10)$$

where,

I is the value of the total investments.

X is the earnings of the firm during the period t.

By substituting the value of mP_1 in the equation 9

$$nP_0 = \frac{(n + m)P_1 - I + X}{1 + p} \quad \ldots (11)$$

It may be noted that the term D_1 does not appear in the above equation. Further all other variables in the equation are independent of D_1. Thus it can be concluded that the dividend decision has no bearing on the valuation of the firm. Hence there is nothing like an optimal dividend policy.

MM Hypothesis under Conditions of Uncertainty

The hypothesis continues to remain valid even if the assumption of perfect certainty is dropped. The condition of uncertainty implies that the values of dividends and the expected future share price are uncertain. Hence, they are

treated as random variables from the point of view of the investors. These variables will, therefore, not assume definite value but a probability distribution of possible values.

The solution is that individual investors can replicate the pattern of any stream of dividends. Let us assume that the investors require a certain desired pay-out to "compensate" for the uncertainty. If the actual dividends are less than the target pay-out, the investors can sell a part of their holdings to generate the desired amount of cash. The investors can thus generate "home-made" dividends to obtain the required pay-out. Conversely, if the actual dividends are more than the target pay-out, the investors can invest the surplus cash into buying more shares of the company. Thus dividend payment would be a matter of irrelevance even under conditions of uncertainty.

MM Hypothesis and Market Imperfections

The assumption of perfect capital market is abandoned. However, there is no unique set of circumstances that constitute "imperfection". There can be a multitude of possible departures from strict market perfections, either singly or in combinations.

Tax differentials exist in the real world, where substantial advantages are accorded to capital gains as compared to dividends. This can be countered by pointing out that the tax structure on dividends is generally progressive while that on capital gains is a flat rate. Therefore, the investors in lower tax bracket may have no differentials or even negative differentials (when dividend income attracts lower tax rate than capital gains). The investors in higher tax brackets have significant tax differentials. Hence, it is difficult to generalize the tax implications of dividend policy on the investors. The advantages and disadvantages of various classes of investors generally tends to get canceled out.

It is further argued that if the tax structure is significantly tilted in favor of capital gains vis-á-vis dividends, then companies which have zero to minimal pay-outs should command a premium over companies with high pay-outs. In this context, it is paradoxical that other dividend theories emphasize on liberal pay-outs to increase the firm valuation. From the corporate taxation angle, most countries do not have tax differentials between distributed and undistributed profits. (India is, however, a notable exception due to imposition of 10% tax on distributed profits.)

The transaction costs have an impact on the arbitrage opportunities to generate cash flows which can replicate the dividend streams of any target policy. The existence of brokerage and transfer taxes hinders the arbitrage process. Investors preferring high pay-out incur transaction costs in selling their shares to increase their current cash flow. On the other hand, investors preferring low to zero pay-outs have such costs as deterrence in buying further shares of the company. Thus transaction costs have equal impact on both sides and have no directional

implications on the dividends versus retained earnings debate. However, flotation costs like issue expenses and underpricing results in dilution of the wealth of the existing shareholders.

Hitherto, it was assumed that firms would issue equity to the extent of retained earnings foregone. It was argued that firms can issue debt or a combination of equity and debt to finance the same. The MM position on this criticism was anchored on their leverage irrelevance theory of capital structure. They countered that the real cost of equity and debt was the same. Hence, the issue of debt did not negate their proposition of dividend irrelevance.

Lastly, most dividend theories assume that there is a systemic bias in favor of dividends over capital gains through retained earnings. This assumption can be subsumed by pointing out that investors are in a position to replicate any stream of dividend pay-out by applying "home-made" dividends. MM argued that if the frequency distribution of corporate pay-out ratios happened to correspond exactly with the distribution of investor preferences of pay-out ratios, it would ultimately lead to a situation where each firm tends to attract investors consisting of those preferring its particular pay-out ratio. As every class of investors are assumed to be equally rational, there would be no implications on the valuation of the firm. They further argued that if the distributions do not match and there is a "shortage" of a particular pay-out ratio, even then the investors need not pay any premium for the shares in short supply. They have the option of achieving their investment objectives by buying appropriately weighted combinations of "plentiful" stocks with different pay-outs, which are currently quoting at a discount. This process of arbitrage will eliminate any premium or discount.

Tailoring the Cash Flow Stream

The irrelevance argument clearly makes sense if investors do not have a preference for current income. If they do, we have to reason a little harder.

A preference for current income means people care about the pattern of cash flows from an investment as well as about the present value of the entire stream of payments (the security's price). For example, retirees who need a certain amount of current income from investments to live comfortably will be upset if a stock they hold reduces its dividends, regardless of the fact that the present value of the whole stream does not change.

Does this imply that if management reduces or eliminates dividends in the near term, investors who need current income have to get out of the stock? In theory the answer is no, because an investor in need of cash can always sell some of his or her stock for cash. The portion of the holding that is not sold appreciates because of the retention of additional earnings, so the value of the original

investment can be maintained in spite of the selloff, even though the number of shares owned decreases.

Illustration 4

Jack and Wendy Winter are retirees who have most of their savings invested in 10,000 shares of Ajax Corporation. Ajax sells for ₹10 per share and pays a yearly dividend of ₹ 50 per share. The firm has no growth for some time. The Winters depend on their Ajax dividends to supplement their retirement income.

This year Ajax discontinued the dividend, but began to grow at 5% per year because of the additional retained earnings. How can the Winters maintain their income and their position in Ajax? Assume there are no costs to buy or sell securities.

Solution

At ₹10 each, the Winter's 10,000 Ajax shares were originally worth a total of (10,000 × ₹10 = ₹100,000). That is, the principal amount of their investment that they want to maintain. At the same time, they have to generate a yearly income stream of (10,000 × ₹50 = ₹5,00,000) to replace the dividend that is no longer being paid.

After a year of growth at 5%, Ajax's shares are worth ₹10.50 each. The Winters can raise ₹5,000 in cash by selling

$$\frac{\text{Rs.}5,000}{\text{Rs.}10.50} = 476 \text{ shares}$$

At the appreciated price, the remaining (10,000 – 476 = 9,524) shares are worth

₹10.50 × 9,524 = ₹10,00,002.

Hence, the gross amount of the Winter's investment is maintained. (The numbers are not quite exact because we have to deal in whole shares.) As an exercise, calculate the required selloff in the second year.

The Tax Disadvantage of Dividends

The following exhibit details the immediate tax consequences to an individual investor, if a firm chooses to distribute ₹100 million in the form of a dividend versus distributing ₹100 million as a share repurchase. It assumes that the investor currently owns 10% of the outstanding shares and plans on maintaining the 10% ownership. It also assumes that the shares if repurchased will be repurchased at a price of ₹50 a share and that they were originally purchased at a price of ₹38 a share. It uses 35% as the tax rate on dividends and 20% as the tax rate on capital gains.

Table 3.1: Tax Consequences – Dividend versus Share Repurchase

(₹in millions)

Dividend Alternative:	
Dividend	100.0
Tax rate	35%
Immediate tax liability	35.0
Share Repurchase Alternative:	
Proceeds from sale of 2 million shares	100
Less Original cost (at ₹38/share)	–76.0
Taxable capital gain	24.0
Tax rate	20%
Immediate tax liability	4.8

Although the immediate tax liability is considerably higher with the dividend alternative, the future tax liability incurred by shareholders when their shares are eventually sold under share repurchase is lower.

In countries like the United States, taxes favor share repurchases over dividends. The gain associated with a share repurchase over a cash dividend depends on:

- The difference between the capital gains rate and the tax rate on ordinary income.
- The tax basis of the shares – that is, the price at which the shares were purchased.
- The timing of the sale of the shares (if soon, the gain is less, but if too soon, the gain may not qualify for the long-term capital gains rate).

3.7 Financial Signaling through Dividends

Most dividend theories imply that changes in dividends have information content about future earnings of the firm. Some theories explain that dividend variations are explicit signals about future earnings sent intentionally, at some costs, by the management. The signaling costs include flotation costs of issuing new shares, the stream of returns on the investments foregone and the higher incidence of taxes on dividends vis-á-vis capital gains. A rise in dividend is generally taken as a signal of increased future earnings of the firm. It carries greater conviction than a mere announcement of better prospects by the management. A reduction of dividends reflects negatively on the future earnings prospects of the firm.

Rightly or wrongly, financial markets have come to read a great deal of information into the payment or non-payment of a dividend. Indeed, the dividend

is viewed as a way for management to send a message to its shareholders. People seem to have more faith in the message carried by dollars and cents than in spoken words. The phenomenon is called the signaling or information effect of dividends, and is especially significant when earnings change.

If earnings turn down, the continuation of a regular dividend is viewed as a statement by management that the business is fundamentally sound and that the downturn is temporary. As a result, firms generally continue paying their normal dividends in the face of temporary decreases in earnings. The message to shareholders is, "EPS is off a little, but don't worry about it. Things will be fine. In the long run, we expect to have plenty of money, so here's your regular dividend."

In the same vein, an increase in the dividend is a stronger statement of management's confidence in the future. An increase accompanying rising earnings is a statement that the earnings improvement is expected to be permanent, and signifies a generally bright future. An increase in the fact of a downturn is a clear attempt to allay stockholders' fears.

On the other hand, a decrease in dividends is taken as terrible news. It generally comes after a sustained reduction in earnings and tells the market that management does not expect the company to have the cash it had in the past. Investors usually react negatively and tend to sell off the stock, depressing its price.

Example: Polycab India's Dividend Growth

Polycab India, a leading electrical goods company, announced dividend of ₹ 9.98 per share for the FY 2020-21 with DPS growth of 48% and pay-out ratio of 16.8%. The company in the FY 2020 had declared a dividend of 6.98 / share and dividend pay-out ratio of 13.5%. The company's dividend pay-out grew rapidly as its capex requirement has gone down in recent years. Further Polycab's dividend pay-out has grown at a CAGR of 60.1% over the last five years. A rise in dividend is a signal of increased future earnings of the firm.

Source: https://www.equitymaster.com/detail.asp?date=01/10/2022&story=6&title=10-Indian-Companies-with-the-Fastest-Growth-in-Dividend-Payouts dated 10th January 2022. Accessed on July 5th 2022

3.8 Bonus Issues and Stock Splits

Bonus issue (also called stock dividend) involves capitalization of reserves by issuing new shares to the existing shareholders. A part or the whole of the reserves are capitalized. The new shares (bonus) are issued to the existing shareholders pro rata to their existing holdings. The proportional stake of the shareholders in the firm remain unchanged though the size of their individual holdings may be significantly different. Hence, bonus issue has no implications on the controlling

interests. From the accounting point of view, the paid-up equity capital of the company increases and the size of the reserves decreases. The overall quantum of the shareholders' funds (net worth) remain constant but there is a change in its composition. Thus, a bonus issue essentially represents a recapitalization of the company. It aligns the share capital with the total shareholders' funds.

Stock splits involve increase in the number of shares outstanding through a decrease in the par value of the share. The total size of the share capital remains the same. Stock splits like bonus issues have no implications on the proportion of individual stakes in the company. Conversely, a company might want to reduce the number of outstanding shares. It can accomplish this through a reverse stock split. A new share with a higher par value is created in exchange of the old shares with lower par values. Reverse stock splits are generally employed to increase the market price of its shares. Market reacts negatively to reverse stock splits and hence firms are generally disinclined to undertake this exercise.

Example: List of Companies Which Have Issued Bonus Shares in September 2021

The following companies have issued bonus shares in the month of September 2021.

Name of the Company	Proportion
GEE	1:10
Libas Consumer Products	1:5
APL Apollo Tubes	1:1
Apollo Tricoat Tubes	1:1
Chemcrux Enterprises	2:1
Mittal Lifestyle	1:10
Rajanandhini Metals	1:2

In order to enhance liquidity in stock, the following listed companies have announced sub division of shares or share split after obtaining the approval of their respective Boards.

These 4 companies announced stock split in February 2022.

Schaeffler India	One equity share having face value of ₹ 10/- each into five equity shares having face value of ₹ 2/- each

Contd. …….

Shree Ganesh Biotech	One equity share having face value of ₹ 10/- each into ten equity shares having face value of ₹ 1/- each
Bhatia Communications	One equity share having face value of ₹ 10/- each into ten equity shares having face value of ₹ 1/- each
JBM Auto	One equity share having face value of ₹ 5/- each into 2.5 equity shares having face value of ₹ 2/- each

Source: https://www.livemint.com/market/stock-market-news/these-4-companies-to-announce-stock-split-in-february-2022-11644119306218.html dated 6th February 2022_ Accessed on July 5th 2022

3.9 Share Repurchases as a Mode of Earnings Distribution

Dividends are increasingly losing their status as the primary vehicle of earnings distribution. Firms are often adopting a strategy of share repurchases as a method to reward the shareholders. The share repurchase plan has benefits to the shareholders. The buy-back provides liquidity to the scrip and presents an exit opportunity (often at a premium to the prevailing market price) to the investors who wish to offload their holdings. The shareholders who continue to hold the shares are benefitted by better market valuation of their shares after the repurchase program. There are three principal methods of share repurchase:

Open Market Repurchases: A firm purchases its own shares like any other investor on the stock exchange. Normally the repurchase program is carried on over an extended period of time. The firm gradually accumulates the required block of shares. The price of the shares rises in the market due to the increased demand for the shares. Such repurchase programs have to comply with stringent norms of the regulatory bodies to prevent their abuse for rigging up the market.

Fixed Price Tender Offers: This mode of repurchase involves making an offer to the shareholders to buy their shares at a certain predetermined price. Such an offer is in the nature of a reverse rights issue. The advantage of fixed price tender offer is that it provides equal opportunities to all the shareholders to participate in the repurchase program. The shareholders can either tender the shares at the stated price or turn down the offer and continue to hold them. The tender offer is kept open for a specified period of time. If the shareholders tender more shares than originally specified, the firm has the discretion to purchase the whole or a part of the excess shares.

Dutch Auction Tender Offers: This method involves making a tender offer to the shareholders of the firm to repurchase their shares. The firm does not fix any predetermined price but announces the number of shares it proposes to buy-back.

The firm may indicate a price band, consisting of a floor price and a ceiling price, for the tender offer. The tender offer is open to all the shareholders of the firm. The shareholders have the discretion to either participate in the repurchase program or to reject the offer and retain their holdings. They can participate in the tender offer by submission of their offer indicating the number of shares and the price at which they are ready to sell. The information relating to the number of shares tendered at various ask prices is assembled. The firm then determines the lowest possible price at which the required number of shares sought can be repurchased. The offers received at or below this cut-off price are accepted. However, the same price (cut-off price) is paid to all the shareholders whose offers have been accepted.

Dutch auctions are gaining increasing popularity as a mode of stock repurchase. A Dutch auction is considered as a financial hybrid combining some features of open market purchases with others of fixed price tender offer. Dutch auctions are less riskier to the management than fixed price premium offers. The fact that all the shares repurchased receive a uniform price may induce some shareholders to submit their offers at very low ask prices to ensure their acceptance in the auction. This would benefit the firm by reducing the final repurchase price. Further, with an upward sloping supply curve for the stock, the entire segment of the curve below the cut-off price is repurchased. Thus, it eliminates those shareholders who assign relatively lower valuations to the stock.

Signaling through Stock Repurchase

Stock repurchases have strong signaling effect on the market. The market views a repurchase program as a reflection of the management belief that the firm is undervalued. The amount of premium in the repurchase price over the current market price of the share is normally taken as an indication of the magnitude of undervaluation of the firm. The rise in the share prices after the repurchase can be pointed as an evidence of the positive signaling effect. There is also strong empirical evidence that the degree of improvement in the share price has a positive correlation with the magnitude of the premium, the percentage of shares repurchased and the fraction of insider holdings.

There is an inherent disincentive for false signaling through stock repurchase. False signaling occurs when the management announces a premium that significantly exceeds the degree of stock undervaluation. This signaling cost is ultimately borne by the non-tendering shareholders. As the management normally pre-commits to refrain from tendering to enhance the signaling power, false signal through excess premium ultimately reduces their own wealth.

Dividend pay-outs and stock repurchase entail cash outflows and have similar informational content. The dividend pay-outs provide regular informational reinforcements of the underlying ability of the firm to generate earnings. A stock repurchase is not a regular event and is taken as a strong pointer on the degree of undervaluation. Hence stock repurchase is considered to have a greater signaling power than regular dividend pay-out.

Example: TCS Buyback - Acceptance

TCS repurchased 4,00,00,000 shares of the company for an aggregate amount up to ₹ 18,000 crore. This amounts to 1.08 per cent of the total paid up equity share capital at ₹ 4,500 per share. The offer of the company was that for every 50 shares, the company will accept 13 shares at a premium to the prevailing market price. The offer was subscribed more than 7.5 times as the investors offered 30.12 crore shares in the buyback process. The excess liquidity in the company was used by the company to acquire the shares.

Source: https://economictimes.indiatimes.com/markets/stocks/news/tcs-buyback-offer-acceptance-ratio-at-26-lower-than-expected/articleshow/90437564.cms dated 25th March 2022. Accessed on July 5th 2022.

3.10 Dividend Payments and Agency Conflicts

The mechanics of paying out dividend initiates with a decision by the firm's board of directors to declare a dividend. The date of the board's vote to declare a dividend is called the declaration date. Apart from declaring the type and amount of the dividend, the board determines the date on which the dividend is to be distributed or paid (the payable date), and the date on which the payment of the upcoming dividend (the record date) is to be made. Further the date of the ex-dividend day or ex-day is also determined. The ex-dividend day is related to those stocks that trade publicly. For these stocks an earlier date must then be established on which new purchasers of the stock will no longer have the right to the upcoming dividend. In other words, they will not be an owner of record with respect to the upcoming dividend.

Key Dates: Every quarterly dividend has four key dates associated with it.

The Declaration Date: The amount of each quarterly dividend is authorized by the firm's board of directors. A separate authorization occurs every quarter even if the firm's policy is to pay the same amount repeatedly. The date on which the board authorizes the dividend is called the declaration date.

The Date of Record: Stocks are registered securities, meaning that a list is kept indicating the name of the owner of record of very share. When a share is sold, ownership is transferred on the record from the seller to the buyer. When the

board authorizes a dividend, it stipulates a date of record. The dividends is payable to owners of record as on the date of record.

The Payment Date: The board also stipulates the date on which the dividend check is to be mailed. This is the payment date.

The Ex-dividend Date: When shares are sold, it can take a few days to update the ownership records, so a sale made shortly before the date of record might not be recognized for payment purposes. To allow for a paperwork lag, brokerage firms have agreed to cut off sales for dividend purposes four business days prior to the date of record. The cutoff is called the ex-dividend date.

Example: Ex-Dividend Dates of Dividends Declared by Companies in April 2022

384 companies have declared dividends in the month of April 2022 and a few of them are listed hereunder.

Company's Name	Type	%	Announcement	Record	Ex-Dividend
Bajaj Holdings	Final	250.00	28-04-2022	01-07-2022	30-06-2022
Mah Scooters	Final	800.00	25-04-2022	01-07-2022	30-06-2022
Bajaj Auto	Final	1400.00	27-04-2022	01-07-2022	30-06-2022
Bajaj Finserv	Final	80.00	28-04-2022	01-07-2022	30-06-2022
Nippon	Final	75.00	28-04-2022	01-07-2022	30-06-2022
Bajaj Finance	Final	1000.00	28-04-2022	01-07-2022	30-06-2022

Source: https://www.moneycontrol.com/stocks/marketinfo/dividends_declared/homebody.php dated 06.04.22. Accessed on July 5th 2022

Types of Dividends

Dividends are paid by firms generally in the form of cash or additional stock. Occasionally, a firm pays an extra or special cash dividend, which may not necessarily be intended to be a recurring event. The most common cash dividend is the regular quarterly cash dividend. Some firms pay a stock dividend, either in addition to or instead of a cash dividend. Stock dividends that involve a larger percentage distribution of additional stock are called stock splits. For instance, say a firm may declare a 2-for-1 stock split, in which each shareholder receives an additional share for each share he owns. In this case, the market value of each share should fall by 50%. In another case suppose a firm declares a 5% stock dividend, so that a shareholder receives 1 new share of stock for each 20 shares

that he or she owns. This stock dividend actually represents a dilution of the market value of each share. Let us see its implication in an ideal capital market. In an ideal capital market, after the 5% dividend is paid to the shareholders, the market value of each share should decrease by 5%. However, each shareholder has 5% more shares, so the total value of their shares remains unchanged.

Dividends versus Earnings: The Smoothing Phenomenon

A firm's management must make its decisions on cash dividends within the context of overall equity management. The practical implications of dividends on a firm's equity are as follows:

a. Dividends reduce the amount of internal equity available for future investments,

b. Dividends increase the probability that the firm will have to sell new equity if new investments should be funded with equity, and

c. Dividends increase the firm's leverage, if the firm has debt.

These effects suggest that a typical firm would pay a dividend that is highly volatile over time, for a variety of reasons. First, the typical firm's profitable investment opportunities and therefore consequently its need for internal funds vary considerably over time. Second, equity offerings can be expensive and perhaps should be avoided. Third, most managers are concerned about their firm's leverage, which will tend to be higher if dividends are paid than if they are not. These reasons bolster a traditional argument that a firm should adopt a residual dividend pay-out policy, or in other words, dividends should be paid only if the firm has excess cash after all of these concerns are taken into account.

Dividend Clienteles

As it has been observed that personal taxes, shareholders' liquidity needs, transaction costs (applicable to both for shareholders and for the firm), and the firm's investment opportunities all affect investors' preference for dividends. On one hand, the individual investors, as well as pension funds, may face low or no taxes and prefer dividends for the income they provide. On the other hand, the other investors face low effective tax rates because they are invested in a tax deferred retirement plan, and these investors do not need dividends for current income.

On the other hand, many high-income investors are in high tax brackets, have long investment horizons, and have no need for additional cash income. Such investors would prefer to hold stocks that pay little or no dividends, and will engage in a buy-and-hold strategy to minimize capital gains taxes. Finally, some investors may be in low tax brackets and require dividends for cash income.

Such differential preferences for dividends naturally lead to dividend clienteles. A dividend clientele is a set of investors who are attracted to the stocks of firms

that have the dividend policy they prefer, based on their tax or liquidity circumstances. This suggests that a given firm may be able to increase its market value if it adopts a dividend policy that appeals to investors whose preferences are not satisfied by firms currently in the market.

However, if existing firms collectively satisfy all dividend clienteles, no individual firm can affect the market value of its equity by adopting any particular dividend policy, a condition called dividend clientele equilibrium. Nevertheless, managers should monitor the changing desires of investors with respect to dividend policy, because they may be able to identify an unsatisfied clientele, adopt the policy that they desire, and thereby enhance market equity value.

For two reasons, it is important for a manager to know whether the firm's dividend pay-out policy attracts particular investors via the clientele effect. First, according to the clientele hypothesis, the firm's dividend policy influences the firm's ownership structure, at least in terms of the type of investors who are attracted to the firm's shares. Second, as we discuss later, a firm's dividend policy can affect the equilibrium expected return on the firm's stock, and thus the firm's cost of equity capital.

The tax advantages of a share repurchase do not apply to all investors. A large percentage of investors are tax exempt (for example, pension funds and university endowments). As previously demonstrated, these investors are indifferent between receiving dividends and having the firm repurchase shares when there are no transaction costs. In reality, however, transaction costs do exist. Shareholders and the firm must pay brokerage fees as part of a share repurchase. Also, shares repurchased with a tender offer usually carry underwriting fees and registration costs. Although these transaction costs are small relative to the tax gains enjoyed by taxable investors with repurchases, they might lead tax-exempt investors to prefer dividends.

Dividends and Principal-Agent Conflicts

In reality there are two principal-agent problems that can be associated to a firm's dividend policy. These are the free cash flow problems and the other problem deals with the incentive of a levered firm to expropriate wealth from its creditors. Let us see some of the literature that has been devoted to the influence of these problems on a firm's dividend policy.

Dividends and the Shareholder-Management Conflict

One of the fundamental principal-agent problems between shareholders and management is the one that involves the free cash flow problem (Jensen 1986). The problem stems from management's private incentive to increase the size of the firm. Management has this incentive for two reasons. First, senior managers' salaries are closely tied to firm size, so if they can succeed in simply making the

firm larger (presumably even at the expense of profitability), their salaries will be higher. Second, if in the process of making the firm larger the firm becomes very complex, it becomes more difficult for incumbent management to be fired and replaced by new management, thus serving the incumbent management's entrenchment incentive.

One way in which management can build a large and complex empire is to refrain from paying dividends; instead, they use excess cash to invest in unprofitable projects and acquisitions. This problem is most severe for highly profitable firms that have relatively few profitable investment opportunities. Management's ability to pursue empire-building by refraining from paying dividends is limited by internal and external governance mechanisms. Internally, the firm's board of directors, if they have the gumption, can discipline management by forcing the firm to pay dividends. Externally, the market for corporate control induces managers to pay at least a minimum amount of dividends to prevent outside intervention. Hence, we have a rationale for dividends despite the possible adverse tax consequences.

The empire-building problem is less severe for firms that are either unprofitable or have profitable investment opportunities whose required expenditures equal or exceed the firm's available internal funds. In either case the firm has no free cash flow. For such firms, there is no rationale for dividends based on a management-shareholder principal-agent conflict, so, given the adverse tax effects of dividends, it is optimal to pay little or no dividends.

Dividends and the Shareholder-Creditor Conflict

It has been often observed that, when a firm has risky debt outstanding, the firm's management, acting in shareholders' interest, has an incentive to take actions to expropriate wealth from the firm's creditors. One means of expropriation is to increase dividends. By increasing dividends, the firm has fewer assets against which creditors have a (priority) claim, and thus the value of a creditors claim is lower than if the firm did not pay dividends.

Underinvestment problem also comes into play if the firm is levered. If the firm has both risky debt outstanding and profitable investment opportunities, management, acting in the interests of shareholders, may forgo profitable investments if they provide no benefit to shareholders because they also benefit creditors. Instead, the firm will pay dividends.

These problems lead creditors to demand a contract covenant that restricts the amount of dividends that the borrowing firm can pay. Such restrictions can serve both to protect creditors and to mitigate the underinvestment problem.

Activity 3.2:

a. What is the essence of dividend preference theory?

……

……

……

b. Is dividend pay-out termed as irrelevant factor in the market valuation of firms?

……

……

……

Dividends and the Interaction of Shareholder-Management and Shareholder-Creditor Conflicts

The two dividend-related principal-agent problems as noted above are not independent. Suppose a levered firm's board of directors seeks to increase dividends both to discipline management and to expropriate wealth from creditors. At the same time, creditors, acting in their own interests, seek to decrease dividends. A serious conflict may emerge among competing stakeholders over the firm's dividend policy. For a profitable, levered firm, the conflict over dividend policy may be particularly severe between the firm's management and the board. This is so because management and creditors both prefer lower dividends and lower leverage (though for very different reasons), while the board presses for higher dividends and higher leverage, both of which are disciplining devices (i.e., both dividends and debt payments soak up free cash flow).

3.11 Summary

- Dividend policy refers to the management's views regarding distribution of earnings to their shareholders.
- Graham-Dodd model postulates that the market price of a share is function of its dividend and earnings.
- Walter model contends that the market price of a share is the sum of the present value of the future stream of dividends and the present value of the future stream of returns from the retained earnings.
- Gordon model values the share by capitalizing its future stream of dividends.
- Modigliani and Miller propounds that the dividend payout is an irrelevant factor in the market valuation of firms.

- The strategic determinants of dividend policy are liquidity, investment opportunities, access to finance, floatation costs, corporate control, investor preferences, restrictive covenants, taxes and dividend stability.
- Lintner model states that the current dividend of a firm depends on its current earnings and its past dividends.
- Bonus issue, stock dividends, stock splits and share repurchases have strong signaling effects on the market.

3.12 Glossary

Dividend Payout Ratio is the ratio at which the dividend amount is paid to shareholders in relation to net income the company generates.

Dividend Policy is the views and practices of the management with regard to distribution of earnings to the shareholders in the form of dividends.

Flotation Costs The costs which are incurred to raise capital such as the merchant bankers, underwriting commission, brokerage, listing fees, marketing expenses, etc.

Pay-out Ratio is a part of equity earnings, which is distributed as dividends to the shareholders.

Retention Ratio is a part of equity earnings, which is retained by a firm. This part is ploughed back in the business to finance some capital expenditure in the future. It serves as a long-term source of finance to a firm.

3.13 Suggested Readings / Reference Material

1. Richard Brealey and Stewart Myers and Franklin Allen and Alex Edmans (2023). Principles of Corporate Finance. 14th Edition, McGraw Hill India
2. Stephen A. Ross, Randolph Westerfield (Author), & Jordon (2018). Fundamentals of Corporate Finance. 12th edition, McGraw Hill College
3. Prasanna Chandra (2020). Strategic Financial Management: Managing for value creation. 2nd edition, McGraw Hill
4. Hubbard & Obrien (2022). Mony, Banking and Financial System. 4th edition, Pearson Education
5. Kalyani Karna (2019). Strategic Financial Management. 1st edition. Corporate Plus Publications Private Limited
6. Edward I Altman (2019). Corporate Financial Distress, Restructuring and Bankruptcy. 4th edition, Wiley
7. Rick Mann & David Tarrant (2020). Strategic Finance for Strategic Leaders: The First Five Tools. Clarion strategy publishing
8. Sheeba Kapil (2021). Financial Valuation and Modelling. Wiley

3.14 Suggested Answers

Self-Assessment Questions – 1

a. Inverse relationship exists between retained earnings and cash dividend: larger retention, lesser dividends; smaller retention, larger dividends.

b. According to the Walter Model, when the return on investment is more than the cost of equity capital, the firm would reinvest retained earnings at a rate which is higher than the rate expected by the shareholders.

Self-Assessment Questions – 2

a. The dividend preference theory maintains that generally stockholders prefer receiving dividends to not receiving them. The argument is based on the uncertainty of the future. It asserts that stockholders prefer current dividends to future capital gains, because something paid today is more certain to be received than something expected in the future. The idea can be put in somewhat cynical terms by saying that stockholders do not trust management to use the cash on hand today to grow the firm into something larger and more valuable later on.

b. Franco Modigliani and Merton Miller propound that the dividend pay-out is an irrelevant factor in the market valuation of firms. They assert that the value of shares is solely determined by "real" considerations i.e., the earning power of the firm and its investment policy. The distribution of earnings in the form of dividends has no bearing on the valuation of the firm. The proportion in which the earnings are split between dividends and retained earnings has no affect on the wealth of the shareholders.

3.15 Terminal Questions

A. Multiple Choice Questions

1. According to the Gordon model, what happens when the rate of return is greater than the discount rate?
   a. The share price falls as the dividend pay-out decreases.
   b. The share price rises as the dividend pay-out increases.
   c. The share price rises as the dividend pay-out decreases.
   d. The share price and dividend pay-out are independent.
   e. The share price just increases sharply and later increases at a declining rate as the pay-out increase.
2. A final dividend once declared_____.
   a. Creates a debt in favor of the shareholders in whose favor it is declared.
   b. Can be revoked with the consent of the shareholders
   c. Cannot be revoked

d. May be revoked
e. May not be revoked.

3. Which of the following is the weightage given by Graham Dodd model?
a. 3 times more weightage to dividends than retained earnings
b. 3 times more weightage to retained earnings than dividends
c. Same weightage to both dividends and retained earnings
d. 4 times more weightage to dividends in relation to retained earnings
e. 4 times more weightage to retained earnings in relation to dividends.

4. Which of the following is the assumption of Walter's model of dividend relevance?
a. New debt is not raised
b. New equity is not raised
c. Retained earnings represent the only source of finance for the firm
d. Both debt and equity can be raised
e. The firm does not use retained earnings to finance its investments.

B. Descriptive Questions

1. What are the different uses which the net earnings of a firm can be put to?
2. Why do firms follow a policy of stable dividends?
3. Why do investors prefer dividend incomes over the capital gains?
4. What are the factors that influence the pay-out ratio of a firm?

3.16 Answers to Check Your Progress Questions

1. (c) The share price rises as the dividend pay-out decreases.

When the rate of return is greater than the discount rate, the share price rises as the dividend pay-out decreases.

2. (c) Cannot be revoked.

A final dividend once declared cannot be revoked.

3. (d) 4 times more weightage to dividends in relation to retained earnings

4 times more weightage to dividends in relation to retained earnings is the weightage given by Graham Dodd model.

4. (c) Retained earnings represent the only source of finance for the firm

The assumption of Walter's model of dividend relevance is that the retained earnings represent the only source of finance for the firm.

Unit 4

Allocating Capital and Corporate Strategy

Structure

"Over time, the skill with which a company's managers allocate capital has an enormous impact on enterprise's value."

- *Warren Buffett*

4.1 Introduction

In the previous unit we discussed the dividend policy. In this unit, we will discuss how to allocate the funds (capital) raised from various sources in various projects. Investment in long term projects is not a simple task. The survival of the firm depends on long term investments. The investments made in projects must be evaluated at strategic points. There are various methods and models which help in allocating capital and building corporate strategy.

4.2 Objectives

After going through the unit, you should be able to:

- Describe the valuation of strategic options with the derivatives
- Calculate cash flows associated with abandonment of projects
- Identify factors affecting the decision to abandon a project
- Explain various methods of valuation

4.3 Valuing Strategic Options with Derivatives

A lot of discussion has been made about the positive net present value of projects that have been undertaken, but very little has been done in answering the question of what is the real source of this positive net present value. Generally, the generation of the net present values of the firms arise due to the existence of investments that are made earlier in the project. It is a general practice of the firms to discount only those cash flows that are directly attached to the project, in doing so they sometimes ignore the total value of the project as such. Thus they fail to recognize that while adopting an investment project may successfully lead to the generation of future investment opportunities. But at the same time, it has been observed that many companies tend to grow as a result of the benefits they reap out of past investments.

Option Pricing Theory as a Tool for Quantifying Economies of Scope

Most investment projects include a certain number of options. This not only involves the option of undertaking certain new projects but also options to cancel, downsize, or expand the project.

Taking this decision depends on a number of factors which may include certain underlying economic variables such as the demand for the product, the level of interest rates, the health of the economy, the success of competitors, the political climate, and so forth. These underlying variables have a direct effect on the values of many traded securities, as well as the company's own stock.

Any continuing project that has been subject to alteration in its midway or even subjected to further investment that was not earlier called for may result in creating opportunities in future. This, put in other words, can be explained in terms of strategic options. The opportunities that are created can be due to the fact that strategic options represent strategies of whether the firm has an option to pursue any project only by taking on the earlier project or going on to any new projects. Here it can be said that unless the firm carries on with the earlier project, the possibility of obtaining the cash flows from the strategic option does not exist.

A good example of this can be a stock option, which has a value that is determined by the price of the underlying stock. Thus put otherwise the traditional methods of performance appraisal tend to treat the investments either as reversible or as irreversible decision that must be taken at a single point of time, with any opportunity being lost in the process. Though this might be the case with certain investment decisions it definitely does hold good for all. In many situations, it is preferable to delay the concerned project and try to gain valuable information which might facilitate the viability of the investment decision. In such cases the existence of the opportunity to invest may be considered as a case very similar to a call option, which by definition gives the right but not the obligation to a stream

of cash flows associated with the project at some future date. So when a company goes ahead or completely rejects a particular investment proposal it actually brings the projects to an end.

So in order to proceed with a project, the value of the NPV would not only have to be positive but also be sufficient to cover the value of the option. In certain cases though the delay in projects may be of advantage, but at the same time the speeding up of the project may also add value to it. This especially is true in the projects that involve research and development; this is because such projects involve a lot of information that seeks to bring new opportunities which are ultimately important to the organization.

Abandoning Projects

As stated in numerous occasions, companies do not consider the past costs of projects while making any decision regarding its future. This may hold good in those situations where a project is already in progress and the company decides to continue with it or even go on considering that it has to abandon the project in mid-way. In such cases the relevant costs will be the future costs that have to be compared with the future revenues so as to determine whether it is viable to abandon the project. Thus as these decisions are always not easy to take, the projects under consideration must be constantly monitored.

Example: India's First Tata Nano EV is Here

Companies do not consider the past costs of projects while making any decision regarding its future. This has been proved in case of Tata Nano EV project that has been relaunched ignoring the previous investments both at Singur and Sanad. It was almost certain that the future of the world's cheapest car Nano was almost abandoned. Tata Motors made a foray into the electric vehicle space and conducted a road test of the Nano EV and was successful. By making strategic option to revive Nano to Nano EV equipped with a lithium battery-powered electric motor, Tata Motors is looking at boosting the sales of Nano, which has been dropping steadily over the last few years in old avatar. The company invested about $1.4 bn in the EV segment which includes Nano EV project as well according to the company officials.

Source: https://www.cartoq.com/indias-first-tata-nano-ev-is-here-video/ dated 30th April, 2022. Accessed on July 5 2022

Cash Flows Associated with the Decision to Abandon the Project

Let us consider two basic patterns of cash flows:

a. Negative cash flow followed by positive cash flow

b. Project life having both positive and negative cash flows.

The former type of project cash flow can be associated with the conventional types of projects, say for example, a particular project is undertaken which, through subsequent years, generates positive cash flows.

Period	0	1	2	3	4	5	6
Cash flows ’000	–1,000	–2,000	–400	1,500	1,200	1,000	800

From the above example, it can be said that abandonment of the project seems unlikely before period 3 is reached, except in cases where the project has come to an end before its scheduled period. Subsequently, once the third year period is over, it would be ignorant to consider abandoning the project. The reason being, commencing from the period 4, the project starts generating positive cash inflows. But at the same time it is essential to keep monitoring the future cash flows of the company, for if the company fails to generate the estimated positive cash flow from period 4, and instead generate negative cash outflow it might be disastrous for the company. Let us now look at the former type of cash flow pattern of the project.

Period	0	1	2	3	4	5	6
Cash flows ’000	–200	300	–140	120	160	–200	300

This type of cash flow might be generated if considerable replacement were necessary in the periods 2 and 5, or if there was any opportunity cost that arose in those periods. In such situations, decisions regarding the abandonment may not be safe even after a negative cash flow, keeping in mind of the expectations of future positive cash flows. So the project may not be abandoned after a period of 2 or 5, rather consideration has to be taken at the end of period 1 as to whether one should proceed with the project at the end of period 3 or 4 and at the end of period 4, whether one should proceed to period 6.

Factors Affecting the Decision to Abandon the Project

While taking decisions regarding the abandonment or continuation of a project, the following factors are taken into account:

a. The cost associated with proceeding with the project.

b. The revenue generated in the project.

c. Revenue that might be generated if the project is subjected to abandonment.

d. Other projects that might be viewed as alternatives to the project, or those that have more profitable use of funds.

4.4 Ratio Comparison Approach

A popular way of valuing firms, projects, or assets is to compare them with other traded firms, projects, or assets. The Ratio Comparison Approach provides a way by which such valuation can be accomplished. This is generally predominant in cases of real asset valuations. Though the standard discounted cash flow method is often used to value real estate, but it is not a very proper approach. Most commercial real estate is valued relative to comparable real estate that has been recently sold. Say a building should sell for ₹10 lakh if it has twice the annual cash flow as compared to a building that has been recently sold for ₹5 lakh. Here the underlying assumption that is made is that cash flows of the two buildings will grow at the same rate. This method sounds reasonable only if all future cash flows of the building under consideration are going to be twice as large as those of the building with which the building is compared. But when this assumption does not hold good, other variables besides current cash flows might serve as better representatives for generating the tracking investment.

These approaches to valuation are predominantly based on the assumption that a new investment should sell for at approximately the same ratio of price to some salient economic variable as an existing investment with an observable ratio; this is the main reason of why this approach is called the ratio comparison approach. The ratio comparison approach uses the ratio of price to earnings, P/NI, where NI stands for net income (that is, earnings).

The Price/Earnings Ratio Method

It is always advisable for a company to adopt a project whenever the project's NPV is positive, that happens only when the project produces the future cash flow stream at a cheaper rate than the comparable investment. Or in other words, if the cost-to-earnings ratio of the project is less than the price/earnings ratio of a comparison investment, the project is an acceptable one.

The price/earnings ratio method assumes, however, that the comparison investment on which the price/earnings multiple is based has the same discount rate and earnings growth as the project being valued.

Effect of Earnings Growth and Accounting Methodology on Price/Earnings Ratios

Though the price/earnings ratio approach is useful in many ways, yet it has certain drawbacks associated with it. The earnings of the project and the comparison portfolio must have similar growth rates. For example, if the earnings of the comparison portfolio are growing at a rate that is more than that of the project, the price/earnings ratio method is invalid. This is primarily because the value of the comparison portfolio will be enhanced by the faster growth rate. Even if the project costs less to initiate and appears to have a favorable cost-to-earnings ratio compared

to the price/earnings ratios available from similar investments, the project could get diluted of its value if the low cost does not make up for the project's low earnings growth rate. Further care should be taken so that the earnings calculations reflect the true economic earnings of the firm. For example, accounting changes, such as one-time write-downs, can dramatically affect the reported earnings of firms without affecting their cash flows or their market values. So it should be borne in mind that the reported earnings used to calculate the appropriate value of a project may substantially disvalue the project.

The Effect of Leverage on Price/Earnings Ratios

While taking decisions regarding capital allocation by using the price/earnings ratio method, it is also necessary to understand how leverage affects a firm's net income per share (EPS) and, even more its price/earnings ratio. So while evaluating a project using the price/earnings ratio method, care should be taken to calculate the earnings of the project based on the assumption that the project is financed with the same ratio of debt to equity, that in other words the leverage ratio as the comparison firm. It can be further elaborated that an increase in leverage, keeping the firm's operations and total value constant, will result in the increase or decrease in the firm's net income per share and price/earnings ratio.

Example: The Effect of Leverage on Price/Earnings Ratios

Leverage affects a firm's net income per share (EPS) and, its price/earnings (P/E) ratio. Let us look at the following examples.

The P/E ratio of Tata Motors is - 12.59 calculated as on 31.03.22 while the long term borrowings as on 31st March 2022 - ₹ 14,102.74 crore.

The P/E ratio of Maruti Suzuki is 64.3 as on March 2022 while the long term borrowings as on 31st March 2022 – Nil.

The above details prove that the P/E ratio has an impact on the leverage (long term borrowings) of a company.

Sources: i) https://www.smart-investing.in/pe ratio.php?Company=TATA+MOTORS+LTD#:~ :text=What%20is%20the%20PE%20 (Price,of%20TATA%20MOTORS%20is%20%2D12.59. dated 30th May, 2022

ii) https://www.moneycontrol.com/financials/tatamotors/balance-sheetVI/TM03 dated 30th May, 2022

iii) https://www.5paisa.com/stocks/MARUTI dated 30th May, 2022

iv) https://www.moneycontrol.com/financials/marutisuzuki/balance-sheetVI/MS24 dated 30th May, 2022, Accessed on July 5, 2022

Self-Assessment Questions – 1

a. What are the factors to be considered for abandoning a project?

……

……

b. State the main assumption underlined in the ratio comparison approach.

……

……

4.5 Competitive Analysis Approach

A competitive analysis approach attributes positive net present value (NPV) to any project of a firm that can identify its competitive advantages and a negative NPV to any project where the competitors have the advantages. In valuing potential acquisitions, the competitive analysis approach now plays a major role.

It has been found in many instances that it is almost an impossible task to determine the contribution of a particular division of a firm to the total value of the company. Say for example, trying to obtain the appropriate price/earnings ratio for an investment in soap production by probing into the details of the financial statements of multiproduct company that goes into manufacturing a lot of different products. This is because the company's soap division may account for only a small part of the performance reported in its consolidated financial statements. Further it can also be said that the positive net present value project can be attributed to the fact only if the company can produce the soap more cheaply or sell it more effectively than its competitors. If this is not the case, the project's net present value is probably negative.

In other words, the NPV of a project is ultimately determined by a firm's advantages relative to those of its competitor. A firm that can accurately assess its competitive advantages may find that this is the best method of assessing the NPV of a project.

Example: NPV of a Project

NPV of a project is ultimately determined by a firm's advantages relative to those of its competitor and the firm can accurately assess its competitive advantages. Let us look at an example.

The cash flows of two companies, Omega Industrial Products Pvt Ltd (OIPPL) and Alpha Industries Pvt Ltd (AIPL), both manufacturing similar products with same amount of initial investment of ₹ 14 lakhs on a new project are given below. Both the projects are to be completed by 5 years. The cost of capital for OIPPL and AIPL is 12% and the present value interest factor @ 12% (PVIF12) for the years 1 to 5 are 0.893, 0.797, 0.712, 0.636 and 0.567 respectively.

Contd. ……

(Amount in ₹)

Particulars	OIPPL	After discount	AIPL	After discount
Cash flow in the year 1	7,00,000	6,25,100	4,00,000	3.57.200
Cash flow in the year 2	6,50,000	5,18,050	4,50.000	3,58,650
Cash flow in the year 3	5,50,000	3,91,600	5,50,000	3.91,600
Cash flow in the year 4	4,20,000	2,67,960	6,25,000	3,97,500
Cash flow in the year 5	2,80,000	1,58,760	6,00,000	3.40.200
Residual value of the project	2,35,000	1,33,245	2,23,000	1,26,441
Total	28,35,000	20,94,750	28,48,000	19,71,591

The NPV of OIPPL is (28,35,000 - 20,94,750) = ₹ 7,40,250.

The NPV of AIPL is (28,48,000 - 19,71,591) = ₹ 8,76,409.

Though both the projects have positive NPV, the project of AIPL has competitive advantage over OIPPL as its NPV is higher.

Disadvantages of the Competitive Analysis Approach

As it is the case with any other valuation methods, the competitive analysis approach too encounters certain drawbacks. Here it is worthwhile to mention that as the competitive analysis approach is implicitly based on the assumption of the existence of the value-maximizing competitors, in some cases it could even lead to not considering a value-maximizing firm astray when this assumption does not hold good.

Use of Different Approaches

Having discussed the derivatives approach, the ratio comparison approach and the competitive analysis approach of valuing the company, the only question that comes in the mind is what method is the best for the purpose of valuation. Let us now try to discuss in brief the applicability of these approaches and how they can be practically implemented.

Let us first take into account the derivative valuation approach. Though this method of valuation provides an advanced way of valuing the company's assets but at the same time it should also be remembered that this is not a technique that can be applied with ease. Take for example, the various strategic options that are available with different investment projects are difficult to recognize even before the project is actually initiated. A further problem is estimating the random process that aids in generating the future prices of the assets that in turn results in determining the investment's present value. This results in the applicability of the derivatives valuation approach in the practical sense. Similarly, the discounted cash flow method also fails practical implementation. This is due to the fact that

in many cases it is difficult to estimate the expected or the certainty equivalent cash flows of an investment.

Valuing Asset Classes versus Specific Assets

Now let us consider valuing asset classes versus specific assets. Let us start with real estate valuation and try to answer the question of whether real estate is a good investment or not. In this aspect it is important to note that the derivatives valuation method and the ratio comparison approaches pose certain problems in their applications. These approaches are based on a comparison between highly similar or related investments and as a result they seem to reveal very less about the relative pricing of the unrelated or even the widely disparate classes of assets, as a result of which they are not effective for identifying whether broad asset classes are mispriced.

In order to determine the attractiveness of real estate investments as a group, it is necessary to ascertain the risk of a broadly spread portfolio of real estate investments and assess as to whether the financial markets are correctly pricing that risk. This calls for the use of the CAPM or the APT that considers the risk return relation across asset classes. On the other hand, keeping in mind the shortcomings of the CAPM and APT it is advisable to have alternatives in more specific cases when they are available. As an example, the use of the CAPM and APT to value an office building would be inappropriate when a suitable comparable office building exists.

Tracking Error Considerations

Using the tracking portfolio method of valuation may be considered as the best valuation approach.

As per the Capital Asset Pricing Model, it is essential that every investment be tracked against a weighted average of the market portfolio and a risk-free asset. Tracking with the CAPM may not always yield the desired result considering the dissimilarities between a particular office building (in our case) and the market portfolio. Using the CAPM to value a real asset is based on the assumption that CAPM-based tracking error has a zero present value and the valuation done on this basis is correct. If the CAPM as a theory is totally incorrect or even incorrect in certain circumstances, this conclusion may not be called for.

Now as mentioned earlier, the tracking error does not have zero present value for those stocks that have low market to book ratios, small market capitalizations, and high past returns.

On the other hand, the cash flows from a portfolio composed of a comparable office building and the risk-free asset tracks the evaluated building's cash flows more closely than a combination of the market portfolio and a risk-free asset. In this case, there is no theoretical reason to believe that the tracking error will have zero present value. At the same time if the tracking error is so small as to be

negligible, a better present value can be obtained by using the comparable office building in a ratio comparison than by using the CAPM.

Other Considerations

Though the ratio comparison approach and the competitive analysis approach appear easy to implement for the strategic options embedded in most projects, in reality their application seems to be limited by the degree to which the comparison investments and firms exhibit rationality, either in their pricing (e.g., in the price/earnings approach) or in their behavior (e.g., in the competitive analysis approach). Added to this, it may be difficult to ensure that the comparison investment (or firm) is truly an appropriate comparison and takes into account all factors which stems from the differences between the comparison entity and the project. So it can be said that there cannot be any single method in valuing a firm's project, rather any of the methods can be applied keeping in mind the type of the project under consideration and its size.

4.6 Weighted Average Cost of Capital

Unlike the APV method, the WACC method deals with the estimation of only levered cash flows, and even considers the debt tax subsidy by the proper adjustment of the discount rate that can be applied to the unlevered cash flows. This adjusted cash flow is in fact the weighted average cost of capital of the project. It is to be noted here that valuing projects that have different risks and different debt capacities using the WACC may not always give the satisfactory result. It can be explained that using the WACC to discount cash flows of an entire business may be comparatively easier than obtaining a WACC for an entire project.

WACC Valuation

Illustration 1

Consider valuation of ABC Company, which is for sale for ₹4,75,000, and has the following characteristics:

Cash sales	:	₹5,00,000 per year for the indefinite future
Cash costs	:	72% of sales
Corporate tax rate	:	34%
Cost of capital if unlevered (r_0)	:	20%
Interest rate (r_B)	:	10%
Target debt to equity ratio	:	1/3

Cost of levered equity $r_S = r_0 + (B/S)\,(1 - T_C)\,(r_0 - r_B) = 22.2\%$,

where B/S = 1/3

We can then calculate weighted average cost of capital.

r_{WACC} = [(Cost of levered equity)(Proportion of equity finance)] + [(Cost of debt finance)(Proportion of debt finance)(1 – tax rate)]

r_{WACC} = (3/4) x 0.222 + (1/4) x 0.10(0.66) = 18.3%

Annual Cash Flows if the Firms were All Equity Financed:

Cash Inflows	–	₹ 5,00,000
Cash Costs	–	₹ 3,60,000
Operating Income	–	₹ 1,40,000
Corporate Tax (0.34)	–	₹ 47,600
Unlevered Cash Flow (UCF)	–	₹ 92,400

The present value of the company is thus

PV = 92,400/0.183 = 504,918

And the NPV of the acquisition would be

NPV = 5,04,918 – 4,75,000 = ₹29,918

It is to be noted here that when using WACC, the value of the debt tax shield is reflected in the denominator (discount rate), rather than the numerator (cash flows).

4.7 Adjusted Present Value Approach

Adjusted Present Value (APV) Method considers evaluating a project as if it is undertaken by an all equity company. The tax shield on debt and the issue costs are not accounted for. The method calls for the estimation of the base case NPV followed by the calculation of the present value of the issue costs and the tax shields. These, when added to the base case NPV, yield Adjusted Present Value (APV), which reflects the net effect on the shareholder's wealth adopting the project. Thus the APV can be written as:

(Project value if entirely equity financed)
+ (Present value of the tax shield on loan)
+ (Present value of other side effects)

The adjusted present value method begins by calculating the value of the firm with all equity financing. Then the value of the debt tax shield (or other side effects), is calculated separately and added together. Mathematically, it can be represented as:

$APV = NPV_U + NPV_F$

The NPV of the Unlevered firm (NPV_U) is calculated by discounting the unlevered cash flows (UCF) by r_0, Where, (r_0) denotes the cost of capital if the firm is unlevered. Thus:

$NPV_U = \sum UCF_t/(1 + r_0)^t$

The NPV of the Financing side effects (NPV_F) is calculated by discounting the debt tax shields by the cost of debt:

$$NPV_F = \sum (\text{Interest Expense})_t \times TC/(1 + r_B)^t$$

Where,

r_B denotes Interest Rate.

TC denotes corporate tax rate.

Costs of financial distress, debt financing subsidies, and issuance costs can all be incorporated into the financing side effects.

APV Valuation

Illustration 2

Let us take the ABC Company example.

Cash sales	:	₹500,000 per year for the indefinite future
Cash costs	:	72% of sales
Corporate tax rate	:	34%
Cost of capital if unlevered (r_0)	:	20%
Interest rate (r_B)	:	10%
Target debt to equity ratio	:	1/3 (B/S)

The unlevered cash flows (UCF) are ₹92,400 annually. Thus the present value of the unlevered company (V_u) be:

$$V_u = 92,400/0.2 = 4,62,000$$

Since the price for the company is ₹4,75,000, we find

$$NPV_u = -4,75,000 + 4,62,000 = -13,000.$$

Comment: So it is not advisable to purchase the company's shares if the company were to maintain an all equity capital structure.

We now want to calculate the NPV of the tax shield from the debt financing.

ABC's annual interest expense will be $B \times r_B$. Discounting the resulting tax shield perpetuity by r_B, we arrive at:

$$NPV_F = (B \times r_B \times T_C) / r_B - T_C B$$

We still need to calculate how much debt ABC will have. Let us say that we want 25% of the levered firm's value (VL) to be financed by debt, so

$$B = 0.25 \times V_L$$

We also know from the APV rule that

$$V_L = V_u + T_C B$$

Solving $B = 0.25 \times (V_u + T_C B)$ gives B = ₹126,229.50 and NPV_F = ₹42,918.

Finally, APV = ₹29,918, which is the same result we found using WACC.

Problems Encountered in the APV Approach

a. The estimation of the adjusted present value calls for the determination of the ungeared industry beta which in turn is based on the Miller and Modigliani theory.

b. Estimation of the discount rates used in the evaluation of the side effects becomes difficult.

c. In certain cases, the complex investment decisions involve extremely lengthy calculations.

Advantages of the APV Approach

In order to mention about the advantages of the APV approach, let us compare it with the WACC and the net of tax operating cash flows so as to get the present value of NPV:

a. The adjustment of WACC based on the assumption of perpetual risk free debt poses problems.

b. The very assumption of the M&M theory that tax relief on debt interest is risk free which might not always be the case.

c. APV accounts for any change in the capital structure that include the value of any additional tax shield obtained from financing existing assets.

d. The approach is useful for valuing any type of financial advantage.

4.8 Combining APV with the WACC Approach

The APV approach as well as the WACC approach calls for estimating the unlevered cash flows of the firm that is under consideration. Let us now make the assumption that the firm is entirely financed by equity. Based on this it can be safely said that the unlevered cash flow is the after tax cash flow of the firm. Having calculated the unlevered cash flows of the project, it becomes necessary to estimate the appropriate cost of capital or the discount rate for these cash flows.

For a company that is financed by only equity, the appropriate risk adjusted discount rate for the project's cash flow is considered to be the company's cost of capital. Further the required rate of return on the firm's assets is the same as the expected rate of return on the unlevered firm's equity. Let us now turn our focus on two costs of capital, one being the unlevered cost of capital, which is actually the expected return on the equity for an all equity financed firm.

Now as the firm is totally financed by equity and there is no debt tax shield, the unlevered cost of capital is also the required rate of return on the firm's unlevered assets. The other cost of capital is the weighted average cost of capital which, in other words, is the weighted average of the after tax expected return paid by the firm on its debt and equity. So it can be safely said that in the absence of any debt

tax shield, or debt subsidy the WACC is the expected return on the firm's assets. In essence, in such conditions the WACC and the unlevered cost of capital hold the same meaning. But what happens when there is the presence of debt shield?

The necessity to distinguish between the two forms of cost of capital gains importance. It is to be mentioned here that the return that the firm pays to its equity holders for the use of capital is the same as the expected rate of return that the investors receive for providing the capital. From a general point of view this might hold true, but the inclusion of government taxing authority that encourages one form of financing over the other explains it differently. In such situations the cost of favored form of financing will certainly differ from that of the expected return to investors. Take for example, the cost of debt financing may be less than the rate of return on the firm's debt that is received by the firm's debt holders. Thus we can see that the existence of the debt tax shield distinguishes the WACC from the unlevered cost of capital of the firm.

Example: APV and WACC Approach

The APV and WACC approach calls for estimating the unlevered cash flows of the firm. SKF India is an unlevered firm totally financed by equity and the rest by short term liabilities as follows.

(₹ in crore)

Particulars	**30.03.21**	**31.03.22**
Shareholders' funds	1514.37	1836.46
Long term debt	Nil	Nil
Other long-term liabilities and provisions	45.73	47.56
Current liabilities	693.11	695.19
Total assets (Fixed + current)	2302.65	2628.65
PAT	297.73	395.13
ROA	316.30%	381.41%

In the absence of any debt tax shield, the WACC is the expected return on the firm's assets which is 316.30% in 2022.

Source: https://www.moneycontrol.com/financials/skfindia/balance-sheetVI/SKF01 dated 28.05. 22, Accessed on 5th July, 2022

Self-Assessment Questions – 2

a. When will the use of Adjusted Present Value (APV) Method be appropriate?

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Contd. ……

b. What are the advantages of the APV Approach?

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4.9 The Importance of Unlevered Cost of Capital for a Levered Firm

In case of valuing all equity financed project when the comparison firm has debt financing, it becomes important to estimate the required rate of return on the comparison firm's equity in the fictitious case of comparison firm that is completely equity financed. Moreover, when the project takes on a tax advantage debt, it becomes essential to analyze how the shifting of the comparison firm's debt affects the risk of the comparison firm's equity.

A finance manager who uses either the WACC or the APV method has to take into account of how the debt financing and taxes affect the risks of the various components of the firm's balance sheet. Let us consider the following simplified balance sheet and explain the phenomenon.

Assets	Liabilities and Equity	Symbol
Debt tax shield (TX)	Debt	D
Unlevered assets (UA)	Equity	E

The above figure shows that the assets of a firm contain two components, one being the unlevered assets, UA that can be defined as the present value of the unlevered cash flows and the other being the debt tax shield which is the present value of the financing subsidy. Now it is important to note here that the beta of the assets is the portfolio weighted average of the betas of the unlevered assets and the debt tax shields.

Discounting Cash Flows to Equity Holders

The common valuation models are used to value the cash flows of the real assets that accrue to the equity as well as the debt holders. We will discuss about the flow to equity holders method in our valuation.

Flows to Equity (FTE)

This method values only the equity portion of a firm or project. In this method one uses the Levered Cash Flows (LCF) of the firm, after accounting for interest payments to debt holders. This is followed by discounting the levered cash flows at the required rate of return on the levered equity (r_s).

This can be mathematically denoted as:

$$NPV = \sum LCF_t / (1+r_s)^t$$

Obtaining the All-equity Cost of Capital

Use the following notation.

r_o: the all-equity cost of capital.

r_s: the required return on levered equity.

r_B: the required return on debt.

B: the market value of debt.

S: the market value of equity.

In order to obtain the all-equity cost of capital when given data for a levered firm, you need to remember your delivering formulas,

For betas:

$$\beta_A = \left[\frac{S}{S + B(1-T)}\right]\beta_E + \left[\frac{B(1-T)}{S + B(1-T)}\right]\beta_D$$

- When we assume the debt beta = 0, we get the delivering formula

$$\beta_E = \left[1 + \frac{B}{S}(1-T)\right]\beta_A$$

For expected returns:

- MM Proposition II with taxes

$$R_s = r_0 + \frac{B}{S}(1-T)(r_0 - r_B)$$

- This gives the following unlevering formula for the all-equity cost of capital

$$R_0 = \frac{S}{S + B(1-T)}r_s + \frac{B}{S + B(1-T)}(1-T)r_B$$

- Note that, although this looks very similar to the formula for WACC

$$R_0 = \frac{S + B(1-T)}{S + B} \text{ x } r_0$$

- This corresponds with our intuition that WACC falls as debt to equity ratio increases.

4.10 Summary

- Firms should evaluate investment projects on the basis of their potential to generate valuable information and the direct cash flows they generate.
- Most projects can be viewed as a set of mutually exclusive projects. For instance, undertaking a project today is one project, taking it a year later is another project, that is forgoing the capital investment immediately (which might have a present NPV). It is done if the other alternative, waiting to invest, has a higher NPV.

- In the ratio comparison approach, firms value projects on the basis of comparison with other traded projects/assets.
- The other approach is the P/E ratio method. This is done by
  - Obtaining the appropriate P/E ratio for the project from a comparable investment whose P/E ratio is known.
  - Multiplying this P/E ratio with the first year's net income of the project.
  - The company should accept the project when the ratio of its initial cost to earnings is lower than the P/E ratio of the comparison investment.
  - P/E ratio of a portfolio of stocks is the sum of their respective P/E ratio times their weight.
- The competitive analysis approach
  - The firm in a competitive market can achieve a positive NPV from a project if they have sense advantage over their competitors. When other firms have a competitive edge, the project will then have a negative NPV.
- Strategic options exist whenever the firm has any flexibility regarding the implementation of the project.
- The existence of these options improves the value of the investment project. If the management ignores these options, the project shall stand undervalued.

4.11 Glossary

Book Value Weights is the percentage of financing provided by different sources as measured by their book values from the company's balance sheet.

Business Risk is the risk arising from variation in earnings before interest and tax.

Capital Structure is the composition of a firm's long-term financing consisting of equity, preference capital, and long-term debt.

Cost of Capital is the minimum rate of return the firm must earn on its investments in order to satisfy the expectations of investors who provide the funds to the firm. It is often measured as the weighted arithmetic average of the cost of various sources of finance tapped by the firm.

Cost of Debt is the rate that has to be received from an investment in order to achieve the required rate of return for the creditors.

Cost of Preferred Stock is the rate of return that must be earned on the preferred stockholders' investment to satisfy their required rate of return.

Net Present Value or **NPV** is a method for evaluating investment proposals. NPV is defined as present value of benefits minus present value of costs.

Net Working Capital is the difference between Total Current Assets and Total Current Liabilities.

The **Operating Cycle** of a firm begins with the acquisition of raw materials and ends with the collection of receivables.

Price/Earnings (P/E) Ratio is the ratio of market price per share to earnings per share. This ratio shows what investors are willing to pay per rupee of earnings.

4.12 Suggested Readings / Reference Material

1. Richard Brealey and Stewart Myers and Franklin Allen and Alex Edmans (2023). Principles of Corporate Finance. 14th Edition, McGraw Hill India
2. Stephen A. Ross, Randolph Westerfield (Author), & Jordon (2018). Fundamentals of Corporate Finance. 12th edition, McGraw Hill College
3. Prasanna Chandra (2020). Strategic Financial Management: Managing for value creation. 2nd edition, McGraw Hill
4. Hubbard & Obrien (2022). Mony, Banking and Financial System. 4th edition, Pearson Education
5. Kalyani Karna (2019). Strategic Financial Management. 1st edition. Corporate Plus Publications Private Limited
6. Edward I Altman (2019). Corporate Financial Distress, Restructuring and Bankruptcy. 4th edition, Wiley
7. Rick Mann & David Tarrant (2020). Strategic Finance for Strategic Leaders: The First Five Tools. Clarion strategy publishing
8. Sheeba Kapil (2021). Financial Valuation and Modelling. Wiley

4.13 Suggested Answers

Self-Assessment Questions – 1

a. While taking decisions regarding the abandonment or continuation of a project, the following factors are taken into account:
   i. The cost associated with proceeding with the project.
   ii. The revenue generated in the project.
   iii. Revenue that might be generated if the project is subjected to abandonment.
   iv. Other projects that might be viewed as alternatives to the project, or those that have more profitable use of funds.

b. The ratio comparison approach to valuation are predominantly based on the assumption that a new investment should sell for at approximately the same ratio of price to some salient economic variable as an existing investment with an observable ratio; this is the main reason of why this approach is called

the ratio comparison approach. The ratio comparison approach uses the ratio of price to earnings, P/NI, where NI stands for net income (that is, earnings).

Self-Assessment Questions – 2

a. Adjusted Present Value (APV) Method considers evaluating a project as if it is undertaken by an all equity company. The tax shield on debt and the issue costs are not accounted for. The method calls for the estimation of the base case NPV followed by the calculation of the present value of the issue costs and the tax shields. These, when added to the base case NPV, yield Adjusted Present Value (APV), which reflects the net effect on the shareholder's wealth adopting the project.

b. In order to mention about the advantages of the APV approach, let us compare it with the WACC and the net of tax operating cash flows so as to get the present value of NPV:

   i. The adjustment of WACC based on the assumption of perpetual risk free debt poses problems.

   ii. The very assumption of the M&M theory that tax relief on debt interest is risk free which might not always be the case.

   iii. APV accounts for any change in the capital structure that include the value of any additional tax shield obtained from financing existing assets.

   iv. The approach is useful for valuing any type of financial advantage.

4.14 Terminal Questions

A. Multiple Choice Questions

1. From which factors, the competitive advantages arise?
   a. Barriers to entry.
   b. Economies of scale.
   c. Economies of scope.
   d. Discounted cash flow.
   e. Both Barriers to entry and Discounted cash flow.
2. Which ratio/s are used in ratio comparison approach?
   a. Price to earnings ratio.
   b. Price to net income ratio.
   c. Price to fixed assets ratio.
   d. Price to cost ratio.
   e. Both Price to earnings and Price to Net Income ratios.

3. WACC method gives best results when?
   a. Valuing projects that have different risks.
   b. Valuing projects that have levered cash flows.
   c. Valuing projects that have unlevered cash flows.
   d. Valuing projects that have different debt capacities.
   e. Valuing projects that have unequal cash flows.
4. On which assumption, the adjustment of WACC is based?
   a. Perpetual risk free debt.
   b. Perpetual risk free equity.
   c. Perfect Market conditions.
   d. Leveraged Beta.
   e. Imperfect market conditions.
5. A project can have as many as different internal rates of return as it has _____.
   a. Cash inflows
   b. Cash outflows
   c. Periods of cash flows
   d. Changes in the sign of cash flows
   e. No connection with cash flows.

B. Descriptive Questions

1. Explain the Ratio Comparison Approach to value firms, projects.

2. How APV method does is better than WACC method to valuation?

3. What is the importance of Corporate Taxes in valuation?

4.15. Answers to Check Your Progress Questions

1. (d) Discounted cash flow
The competitive advantages arise discounted cash flow.

2. (e) Both Price to earnings and Price to Net Income ratios.
Price to earnings and Price to Net Income ratios are used in ratio comparison approach.

3. (e) Valuing projects that have unequal cash flows.
WACC method gives best results when valuing projects that have unequal cash flows.

4. (a) Perpetual risk free debt.
The adjustment of WACC is based on perpetual risk free debt.

5. (d) Changes in the sign of cash flows
A project can have as many as different internal rates of return as it has changes in the sign of cash flows.

Strategic Finance and Corporate Restructuring

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