

1 Introduction

The Financial Institutions and Markets

Financial institutions serve as intermediaries between suppliers and users of funds. It is in the *financial markets* that entities demanding funds are brought together with those having surplus funds. Financial markets provide a mechanism through which the financial manager may obtain funds from a wide range of sources, including financial institutions.

The financial markets are composed of *money markets* and *capital markets*.

Money markets are the markets for short-term (less than 1 year) debt securities. Examples of money market securities include:

- U.S. Treasury bills
- Federal agency securities
- Bankers' acceptance
- Commercial paper
- Negotiable certificates of deposit

Capital markets are the markets for long-term debt and corporate stocks. Examples of capital market securities include:

The New York Stock Exchange

The American Stock Exchange and the regional stock exchanges

Components of Equity

The stockholders' equity section of a company's balance sheet consists of:

- **Capital stock**, which includes the stock issued by the corporation and stated at par value. The two types of capital stock are preferred and common.
- **Paid-in capital**, which represents the excess over par value received by a corporation for the issuance of stock.
- **Retained earnings**, which refers to the accumulated earnings of the company less any dividends paid out.



Key terms:

Target Capital Structure – it is the mix of debt, preferred stock, and common equity with which the firm plans to raise capital. This target may change over time as conditions change, but at any given moment, management should have a specific capital structure in mind.

1.1 Capital structure policy involves a trade-off between risk and return:

- Using more debt raises the risk borne by stockholders
- However, using more debt generally lead to higher expected rate of return

1.2 Relationship between risk and stock price:

Higher risk tends to lower a stock's price, but a higher expected rate of return raises it. Therefore, the *optimal* capital structure must strike that balance between risk and return which maximizes the firm's stock price.

1.3 Four factors influence capital structure decisions:

- **Business risk**

The greater the firm's business risk, the lower its optimal debt ratio.

- **The firm's tax position**

Interest is deductible for tax purposes, and hence lowers the effective cost of debt. Interest deductions are most valuable to firms with high tax rates.

- **Financial flexibility**

It is the ability to raise capital on reasonable terms under adverse conditions.

- **Managerial conservatism or aggressiveness**

Some managers are more aggressive than others, hence some firms are more inclined to use debt in an effort to boost profits.



Key terms:

1.4 What is **business risk**?

Business risk is the risk associated with projections of a firm's future returns on assets (ROA) and is the single most important determinant of capital structure.

1.5 Business risk varies from one industry to another, and also among firms in a given industry. Business risk can change over time. Smaller companies, especially *single-product firms*, also have relatively *high* business risk.

1.6 Business risk depend on a number of factors:

- **Uncertainty about demand (sales)**
- **Uncertainty about output prices**
- **Uncertainty about costs**
- **Product, other types of liability**
- **Operating leverage**



Key terms:

1.7 What is **operating leverage**?

It is the extent to which **fixed costs** are used in a firm's operations.. If a high percentage of a firm's total costs are fixed, the firm is said to have high operating leverage. Fixed costs do not decline when sales revenue falls due to lower demand; and hence the firm has high operating leverage.

1.8 Other things held constant, the *higher* a firm's fixed costs, the *greater* its business risk. Using more operating leverage raises the expected rate of return, but it also increases the riskiness of that return.

1.9 If fixed costs are high, even a small decline in sales can lead to a large decline in operating profits and return on equity (ROE).

1.10 **Breakeven point** is the volume of sales at which total costs equal total revenues, causing operating profits (or EBIT) to equal zero.

1.11 Control over operating leverage:

- Operating leverage is determined by technology. Example, telecommunication companies have to make heavy investments in fixed assets and as a result, they have high fixed costs and thus high operating leverage.
- Capital budgeting decisions can influence operating leverage and thus basic business risk.

**Key terms:**1.12 What is **financial risk**?

It is an increase in stockholders' risk, over and above the firm's basic business risk, resulting from the use of *financial leverage*.

Financial leverage is the extent to which fixed-income securities (debt and preferred stock) are used in a firm's capital structure.

1.13 Business risk v financial risk:

- Business risk depends on business factors such as competition, product liability, and operating leverage.
- Financial risk depends only on the types of securities issued: More debt, more financial risk. Concentrates business risk on stockholders.

1.14 Summary:

- Some amount of business risk is inherent in all assets other than risk free bonds.
- Business risk is generally higher if the firm chooses to use more operating leverage.
- The concepts of business risk and operating leverage can be applied to whole firms as well as to investment projects.
- In general, taking on a lot of risky projects results in a risky firm.
- Although using more operating leverage generally increases a firm's or project's risk, higher operating leverage also increases the expected rate of return.
- Assets, including whole firms, must be financed, and the two basic types of capital are debt or equity.
- In general, increasing the use of debt increases the expected rate of return, but more debt also means that the firm's stockholders must bear more risk.
- Both the operating leverage and financial leverage increase the expected rate of return to and risks borne by stockholders.

2 Determining the Optimal Capital Structure

The company should use the amount of debt, or the capital structure, that *maximizes the price of its stock*.

2.1 Changes in the use of debt will cause changes in earnings per share (EPS) and, consequently, in the stock price.

2.2 The higher the percentage of debt, the riskier the debt, hence the higher the interest rate lenders will charge.

2.3 Using leverage has both good and bad effects: higher leverage increases expected earnings per share (EPS) but it also increases risk.

2.4 The optimal capital structure is the one that maximizes the price of the firm's stock, and this generally calls for a debt ratio which is lower than the one that maximizes expected EPS.

2.5 Stock prices are **positively** related to expected dividends but **negatively** related to the required rate of return on equity.

2.6 Higher debt levels increase the firm's risk, and that raises the cost of both debt and equity and works to reduce the stock price.

2.7 Firms generally consider the following factors when making capital structure decisions:

- Sales stability
- Asset structure
- Operating leverage
- Growth rate
- Profitability
- Taxes
- Control
- Management attitudes
- Lender and rating agency attitudes
- Market conditions
- The firm's internal condition
- Financial flexibility

2.8 Modigliani and Miller developed a **trade-off theory of capital structure**. They showed that debt is useful because interest is tax deductible, but also that debt brings with it costs associated with actual or potential **bankruptcy**. Under MM's theory, the optimal capital structure strikes a balance between the tax benefits of debt and the costs associated with bankruptcy.

2.9 A high debt ratio raises the threat of bankruptcy, which carries a cost but which also forces managers to be more careful and less wasteful with shareholders' money.

2.10 Bankruptcy-related problems are more likely to arise when a firm includes more debt in its capital structure. Bankruptcy costs discourage firms from using debt excessively. Firms whose earnings are more volatile, all else equal, face a greater chance of bankruptcy and, therefore, should use less debt than more stable firms.

2.11 Bankruptcy costs include:

- Legal and accounting expenses
- Difficulty in retaining customers, suppliers, and employees
- Suppliers refuse to grant credit
- Restrictive loan covenants
- Higher interest rates

2.12 An alternative theory of capital structure relates to the **signals** given to investors by a firm's decision to use debt versus stock to raise new capital. A stock issue sets off a negative signal, while using debt is a positive, or at least a neutral, signal. As a result, companies try to avoid having to issue stock by maintaining a **reserve borrowing capacity**, and this means using less debt in "normal" times than the **MM trade-off theory** would suggest.

**Key terms:**

Signal – it is an action taken by a firm's management which provides clues to investors about how management views the firm's prospects.

Reserve Borrowing Capacity – it is the ability to borrow money at a reasonable cost when good investment opportunities arise. Firms often use less debt than specified by the MM optimal capacity structure to ensure that they can obtain debt capital later if they need to.

Symmetric Information – it is the situation in which investors and managers have identical information about firms' prospects.

Asymmetric Information – it is the situation in which managers have different (better) information about firms' prospects than do investors.

2.13 The bond rating and cost of debt depend upon the amount borrowed because:

As the firm borrows more money, the firm increases its risk causing the firm's bond rating to decrease, and its cost of debt to increase.

2.14 Sources of long-term debt include mortgages and bonds.

Mortgages

Mortgages represent notes payable that have as collateral real assets and require periodic payments. Mortgage can be issued to finance the acquisition of assets, construction of plant, and modernization of facilities. The bank will require that the value of the property exceed the mortgage on that property. **Most mortgage loans are for between 70 percent and 90 percent of the value of the collateral.**

2.15 Mortgages may be obtained from a bank, life insurance company, or other financial institutions.

2.16 There are two kinds of mortgages: a senior mortgage, which has first claim on assets and earnings, and a junior mortgage, which has a subordinate lien.

2.17 Mortgages have a number of advantages, including favourable interest rates, less financing restrictions, and extended maturity date for loan repayment.

Bonds

A bond is a certificate indicating that the company has borrowed a given sum of money that it agrees to repay at a future date.

2.18 A bond may be sold at a **discount** when the interest rate on the bond is below the existing market interest rate for that type of security. A bond is sold at a **premium** when the opposite market conditions exist.

2.19 Types of Bonds:

- Debentures
- Mortgage bonds
- Convertible bonds
- Guaranteed bonds
- Others

2.20 Advantages of using bonds include: (1) There is a fixed payment each year (2) Bonds are safer than equity instruments

2.21 Disadvantages of using bonds include (1) Investors do not participate in incremental profitability (2) There is no voting rights

3 Advantages v Disadvantages Long-term Financing

3.1 Advantages of Issuing Long-term Debt:

- Interest is tax deductible
- Bondholders do not participate in superior earnings of the firm
- The repayment of debt is cheaper at time of inflation
- There is no dilution of company control
- More flexibility
- It may safeguard the company's future financial stability, for example, in times of tight money markets when short-term loans are not available

3.2 Disadvantages of Issuing Long-term Debt:

- Interest charges must be met regardless of corporate earnings
- Debt must be repaid at maturity
- Higher risk associated with debt leads to higher cost of capital
- Restrictive loan covenants
- Over commitments may arise due to forecasting errors.

4 Conclusion on Capital Structure:

- Need to make calculations as we did, but should also recognize inputs are "guesstimates."
- As a result of imprecise numbers, capital structure decisions have a large judgmental content.
- We end up with capital structures varying widely among firms, even similar ones in same industry.

Reading/reference materials:

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- Brockington R. Financial Management. 6th edition. DP Publications Ltd. 1993