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Capital Structure and Financing Decision: Industry-Base Debt-Equity Ratio in Bangladesh

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Abstract
This study covers the significance of capital structure for the organization which differs on the basis of the industry. The reasons behind the various debt-equity ratios for different industry are also discussed in this study. This study also mainly focused on the use of debt and equity for financing the various types of industry in Bangladesh. It is important to evaluate any particular industry of any country by considering their financing decision which has an impact on capital structure. Bangladesh is a developing country and has an opportunity to attract the foreign investors and also the domestic investors to invest in the country. For this reason, it is essential to assess the capital structure before investing in the industry of this country.
Keywords: Capital Structure, Financial Distress Cost, Weighted Average Cost of Capital, Debt-Equity Ratio, Tax Benefit.

1. Introduction

It is important for any business organization to achieve the organization's ultimate goal which is maximizing the shareholders' wealth. However, one of the factor that affects the shareholders' wealth is that the use of optimum level of debt-equity ratio which is also referred as capital structure. Capital structure is the allocation of financial resources from debt and equity sources where cost of capital varies based on the proportion and the cost of the debt and equity. Cost of capital varies because in case of debt, interest expense is tax deductible. However, in case of equity, there is no tax exemption and higher the risk associated with the investment of the business, higher will be the cost of equity. Business firm which takes debt is called as levered firm and firm which collects fund on equity basis is called as unlevered firm. The objective of this study is to determine the debt-equity ratio which is used in different industries of Bangladesh.

2. Review of Capital Structure

The most important financial decision making of the company is to face the challenge of capital structure which has two portion debt and equity. However, high portion of debt in capital structure may increases the risk of bankruptcy when the company's growth is slow or temporarily negative. Capital structure is the combination of debt and equity used to finance a firm. Target capital structure is the combination of different sources of funds with which the business plans to finance its investments. Optimum capital structure is the combination of different sources of funds that minimizes weighted average cost of capital (wacc) and maximizes value of the business is called optimum capital structure. Cost of capital measured as wacc significantly affects the value of a firm which can be managed by the capital structure decision making. Wacc varies with the changes of proportion of the debt (wd) versus the proportion of the equity (we) and the cost of debt (kd) versus cost of equity (ke).
However, according to Modigliani and Miller Theory, capital structure does not affect the value of the firm which means value of the levered firm is same as the value of unlevered firm where the assumptions are the borrowing rate for individual and corporations are same, market is efficient, there is no transaction or brokerage costs, no tax, no bankruptcy cost, no asymmetric information and earnings before tax is not affected by the use of debt.

Another theory named as Trade-off Theory states that the excess debt creates bankruptcy cost or financial distress cost accompany with tax benefit. Here, value of the firm can be maximized with the trading off between financial distress cost and tax benefit where value of levered firm can be maximized with the debt level in capital structure when tax benefit is same as financial distress cost. The financial distress cost is two types direct and indirect where direct financial distress cost includes legal fees, accounting fees, administrative fees etc. and indirect financial distress cost includes impairment of business capacity, agency costs due to the conflict of interests between creditors and shareholders.

An alternative to trade-off theory is the pecking order theory of Myers and Majluf (1984) and Myers (1984). The pecking order theory is based on two prominent assumptions. First, the managers are better informed about their own firm's prospects than are outside investors. Second, managers act in the best interests of existing shareholders. Under these conditions, a firm will sometimes forgo positive net present value projects if accepting them forces the firm to issue undervalued equity to new investors. This in turn provides a rationale for firms to value financial slack, such as large cash and unused debt capacity. Financial slack permits the firms to undertake

projects that might be declined if they had to issue new equity to investors. The pecking order theory predicts that firms prefer to use internal financing when available and choose debt over equity when external financing is required.

However, the Signaling Theory states that, firm with the expectation of higher profit will expect to take more debt. So, the news of taking more debt will signal the investors that the firm's value is higher regardless of the intention of firm to take debt where cost of debt will be determined by market competition.

According to Modigliani and Miller (1958), in a perfect market and no taxes situation, company's capital structure does not influence the cost of capital and there is no optimal capital structure in such a condition. However, with the recognition of corporate tax, the value of a firm increases with the amount of debt under conditions of certainty and perfect market because of the tax shield afforded by debt financing. It has been shown that the optimal capital structure for a value maximizing firm is attained at less than a 100 percent debt level, when certainty, market imperfection and personal taxes are also taking account.

Moreover, capital structure is influenced by the expected cost of financial distress according to Bradly, Jarrel and Kim (1984) and Haugen and Senbet (1988) argued that indirect costs of financial distress (extraordinary administrative costs, possible loss of key managers and employees, loss sales, loss of total credit and reduced liquidly of the security) has a large impact on the value of a firm which rises exponentially accelerating the process of bankruptcy.

Market imperfection is costly as there are various agency costs, variations in personal and corporate tax rates and differences in utility curves. As a result, firm may achieve the optimal financial structures at varying proportions of debt (Fischer et al., 1989 and Stiglitz, 1988). Firm's size, industry and country have impact on the market imperfection and taxes which has also impact on capital structure decision making.

2.1 Capital Structure in Bangladesh Perspective

According to Chowdhury Anup and Chowdhury Paul (2010), maximizing the wealth of shareholders requires a perfect combination of debt and equity, whereas cost of capital has a negative correlation in this decision and it has to be minimized. This is also seen that by changing the capital structure composition a firm can increase its value in the market.

3. Research Methodology

In this study, secondary data has been used which are the annual reports of the different industry in Bangladesh. Each industry has been represented with some of the business firm where the sample size is five which are randomly chosen. Moreover, the Microsoft Excel has been used to analyze the secondary data.

4. Industry-Base Capital Structure in Bangladesh

In Bangladesh, there are many types of companies who have issued their stock in capital market. However, the market is still emerging as there are few companies which constitute an industry. On contrary, some industry is formed by many companies, such as Commercial Banks, Engineering Sector, Financial Institutions, Insurance, Pharmaceuticals and Chemicals and Textile Industry.

Table 1. Industry Average of Debt-Equity Ratios in Bangladesh

Industry	**Industry Average (times)**
Bank	9.80
Cement	0.71
Engineering	1.32
Financial Institutions	3.81
Food and Allied	1.03
Fuel and Power	2.58
Insurance	0.35
Textile	2.24
Pharmaceuticals and chemicals	2.29
IT Sector	0.24
Service and Real Estate	3.27
Tannery Industries	1.36

From the Table 1, it is found that in case of commercial banks, the average debt-equity ratio is exceptionally higher which is 9.8 times. The reason is that commercial banks are financial intermediaries who collect funds from the people who have surplus fund with the promise to pay interest rate and provide funds to the people who have deficit of funds in exchange banks earn higher interest rate. Moreover, the financial institutions have an average debt-equity ratio of 3.81 times which is comparatively higher but next to banking sector. This means that these two industries are using more debt than equity compare to other industries in

Bangladesh.

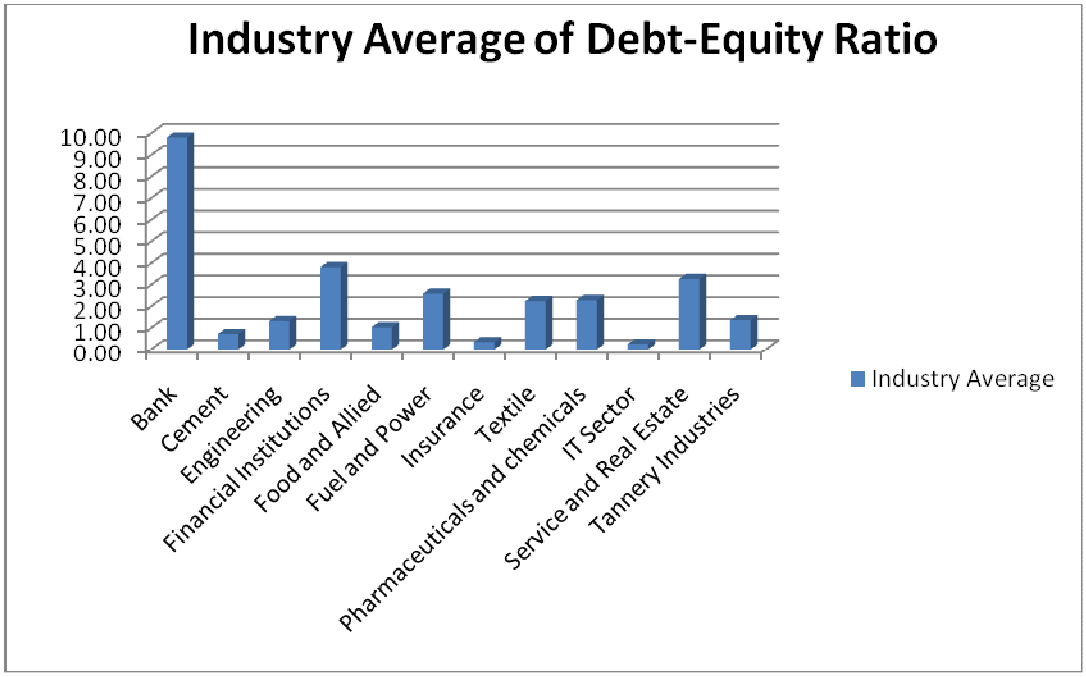

Figure 1. Industry Average of Debt-Equity Ratio in Bangladesh

In case of cement industry, from Table 2, it is found that the average debt-equity ratio is 0.71 times which imply, the industry is using approximately 37.5% debt and 62.5% equity. It indicates that the industry is taking less default risk. Moreover, the industry average of Food and Allied industry is 1.03 times which means this industry is also using the debt and equity in ratio of 40% and 60%, approximately.

Table 2. Industry Average of Debt Ratio and Equity Ratio (in percentage) in Bangladesh

Industry	**Ind. average of debt ratio (%)**	**Ind. average of equity ratio (%)**
Bank	90.50%	9.50%
Cement	37.53%	62.47%
Engineering	52.17%	47.83%
Financial Institutions	71.07%	28.93%
Food and Allied	39.46%	60.54%
Fuel and Power	58.99%	41.01%
Insurance	25.03%	74.97%
Textile	59.76%	40.24%
Pharmaceuticals and chemicals	47.43%	52.57%
IT Sector	18.11%	81.89%
Service and Real Estate	47.09%	52.91%
Tannery Industries	51.56%	48.44%

On contrary, in Figure 1, the Engineering Sector and Tannery Industry have average debt-equity ratio of 1.32 times and 1.36 times which imply these industries are using the debt and equity of 52% and 48%, roughly. It indicates that they prefer more debt compare to equity. However, the average debt-equity ratio of Fuel and Power Industry and Textile Industry are 2.58 times and 2.24 times. It implies that these industries have the capital structure which use more debt compare to equity where the debt is 59% and equity is 41%, approximately.

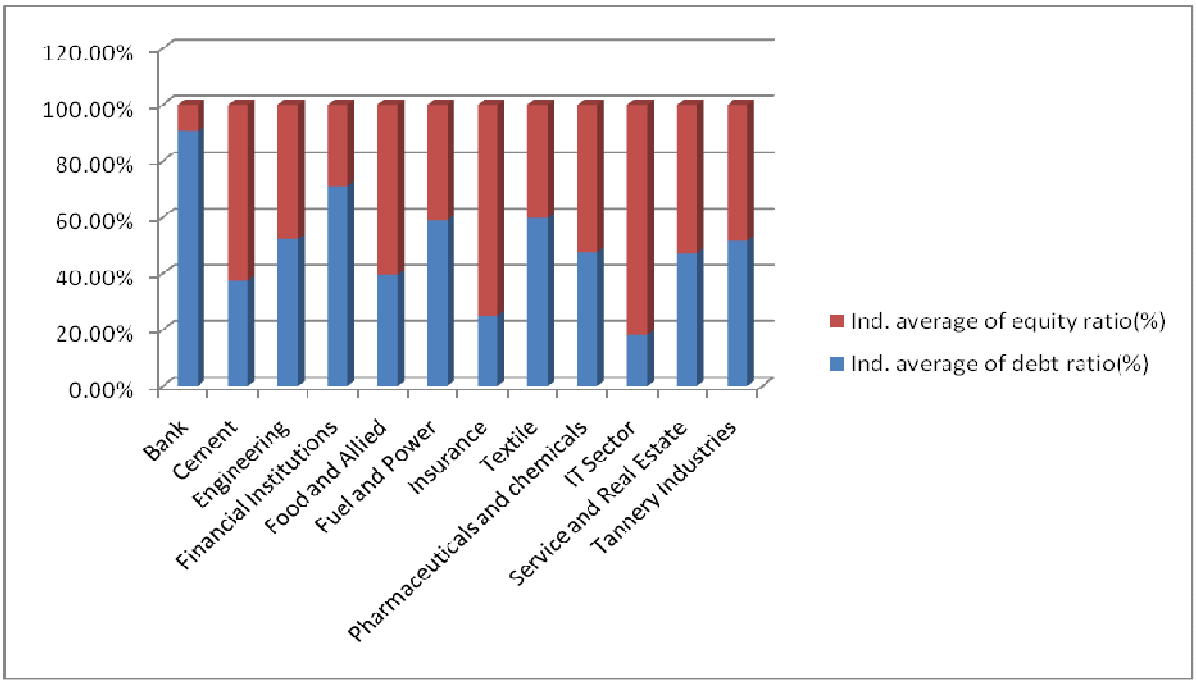

Figure 2: Industry Average of Debt Ratio and Equity Ratio (in percentage) in Bangladesh

However, from the Figure 2, it is found that the Pharmaceuticals and Chemical Industry and Service and Real Estate Industry are using less debt and more equity in proportion to 48:52, approximately. It indicates that these two industries are taking less default risk; in return they are minimizing their financial distress cost (FDC). Moreover, from figure 1, it is clearly found that Insurance sector is using less debt financing and more equity financing where the mixture of debt-equity is about 25:75. It is also found that the IT sector of Bangladesh is using lowest level of debt which means this sector is based on mainly equity financing and the debt-equity ratio is 18:82 approximately.

5. Conclusion

Capital structure is the most crucial decision for any organization which can maximize the value of a firm if the debt-equity ratio is optimal. However, the optimum debt-equity ratio varies from industry to industry because of the nature of business, government subsidies and market condition of that particular industry. So, before investment, any investor should consider the nature of industry and other factors which can affect the industry. As these factors affect the decision of using the debt–equity to finance the project, capital structure is different for various industries in a particular country which is evident from this study.

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