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# OPTIMIZING CAPITAL STRUCTURE THROUGH DEBT TO EQUITY BALANCING: A STUDY OF SELECTED ZIMBABWE STOCK EXCHANGE LISTED COMPANIES

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#### **ABSTRACT**

The firm's capital structure as denoted by the debt to equity ratio or the financial debt to equity ratio is dependent on the weighted average cost of capital according to the traditional theory of capital structure. This study was conducted to investigate empirically, the determinants of capital structure for Zimbabwe Stock Exchange listed companies. The study also sought to establish if listed companies in the Zimbabwe Stock Exchange maintain a target debt to equity ratio as a measure of capital structure optimization. Data was collected through a questionnaire and also through the analysis of the financial statements of the selected listed companies. The findings from the survey confirmed that the cost of capital is a determinant of capital structure as denoted by debt to equity ratio. That is, capital structure depends on the weighted average cost of capital (WACC). The high WACC is associated with high debt to equity ratios and the cost of capital is a predominant consideration for making capital structure decisions in the Zimbabwe Stock Exchange listed companies. In addition, the analysis of the financial statements of the selected Zimbabwean listed companies revealed the evidence that companies with debt generally perform better than the all equity financed companies, the earnings per share (EPS) and Share Prices are generally higher. The majority of managers in the Zimbabwe Stock Exchange listed companies maintains a target debt to equity ratio and rebalances their capital structure to move towards their target whilst very few of managers have a no target policy at all. Few managers maintain a strict target and most managers maintain a target range and a considerable number of managers consider a flexible target as important.

#### **KEYWORDS**

WACC, debt to equity ratio, capital structure, EPS, Share Price, risk, wealth maximization, ZSE.

#### INTRODUCTION

apital structure optimization decisions taken by agents (managers) on behalf of the principals (shareholders) as reflected by each company's debt to equity ratio are a critical strategy reflection towards shareholder value growth or wealth maximization realization. Financial management literature suggest that managers strive to satisfy shareholders by focusing on those actions that will result in the maximization of the wealth of the shareholders by growing the value of the companies they are managing on behalf of those shareholders. As a result, there is generally a relationship between shareholder value growth and the business strategies employed by management.

The growth and development of a company depend crucially on that company's access to sources of financial capital. Zimbabwe's capital markets revolve around the Zimbabwe Stock Exchange (ZSE), with a market capitalization of about USD 6.371 billion. The Zimbabwe Stock Exchange (ZSE) was established in 1896, initially to provide a forum through which mining companies could raise equity financing to fund operations. Although the ZSE was originally established to cater for the mining industry, today, the majority of listed companies are non-mining. The exchange was regulated by the Zimbabwe Stock Exchange Act 1974, 1996 (Chapter 24:18) but was replaced by the Securities Act in 2008. The first stock exchange was established in Bulawayo in 1896. The exchange in Harare started operating in 1951

#### **NEED FOR THE STUDY**

Having in mind all the limitations of financing faced by Zimbabwean firms, it is the duty of financial managers to establish an adequate finance policy, taking the predominant theoretical knowledge in consideration, and search for the sources that fit best the financial needs of the company and the concern of stockholders to have their wealth maximized. Research has been executed to identify the determinants of capital structure, nonetheless, the concerns of most capital structure studies are in developed countries and there are few studies that offer evidence from developing countries such as Zimbabwe. The capital market conditions, the legal frame work, the caliber of management and the general industry practices are bound to influence the determination of capital structure choice in a significant way for Zimbabwean firms. Initial Public Offers and other new equity issues on the Zimbabwe Stock Exchange have been limited ever since the introduction of the multi-currency regime in 2009 owing to the liquidity state of the economy. The different sources of finance all have different financial risks; the financial risks; the financial risks have to be combined with the business risk which determines the cost of capital. The differences of capital combinations and their risk components, cost components all lead to the optimal capital structure which minimizes the cost and risk of capital used to finance the corporate firm. One factor of great influence is availability of funds in the capital markets, the Zimbabwe's industry is still undercapitalized characterised by a lack of finance for long term projects and new machinery.

#### STATEMENT OF THE PROBLEM

The Zimbabwean economy has been characterised by an undercapitalised industry and high borrowing costs ever since the adoption of the multi-currency regime. There are companies in Zimbabwe with too much debt and the general default rate of business loans is significant while the cost of capital is relatively high, lowering the value of the companies in the process. These conditions in a developing economy are different to the emerging economies and the developed economies in factors such as sources of capital and their cost, in particular the overall cost of capital. Some other analysis of Zimbabwean companies' capital structure has applied Western capital structure theories without closely examining the relevance or irrelevance of these theories when applied to the Zimbabwean institutional context. Therefore, this study sought to investigate the optimizing capital structure strategies employed by listed companies in the Zimbabwe Stock Exchange, from a developing economy context.

#### **OBJECTIVES OF THE STUDY**

- 1. To investigate empirically, the determinants of capital structure for Zimbabwe Stock Exchange listed companies, on the basis of the theoretical framework, particularly the impact of cost of capital (WACC) on debt to equity ratios.
- 2. To analyse and investigate the importance of capital structure in adding value to the wealth of shareholders.
- 3. To establish if listed companies in the Zimbabwe Stock Exchange maintain a target debt to equity ratio as a measure of capital structure optimization.

#### **METHODOLOGY**

Primary data was collected using a questionnaire which evaluated the opinions of 30 top managers of the 10 selected listed companies, and 10 company secretaries over a set of factors that are likely to influence their decision making on the capital structure policies. Secondary data was also collected from the published financial statements of these selected listed companies.

#### LITERATURE REVIEW

The Traditional Theory of Optimal Capital Structure: There are many methods for the firm to raise its required funds. But the most basic and important instruments are equity or debt. The firm's mix of different securities is known as its capital structure. The capital structure can be discussed under the traditional or modern theory. Traditional theory assumes that an optimal capital structure does exist and depends on the level of gearing. The company cannot maximize wealth unless the optimal weighted average cost of capital (WACC) is achieved. Because debt has a lower after tax cost than equity, as it is moderately increased, the WACC falls. The moderate increase in debt does not increase the overall risk of the firm and therefore the firm does not have to offer a higher return to shareholders to compensate for the increased risk, as debt capital is further increased, the WACC will continue to fall up to a certain point. After thus optimal level is reached, any further increase in debt capital will increase the risk of the firm and shareholders will demand a higher yield. Shen (2008) states that the choice of capital structure of a firm could be influenced by the relative costs of debt and equity, and therefore the value of a firm could be affected by the net balance of relative costs of debt and equity in the chosen structure of capital. The impact of capital structure on the value of a firm depends on a net balance between the benefit of debt financing (cost reduction) and the increased cost of equity (risk reduction).

The result of the hypothetical analysis is that there may be an optimal capital structure where the value of a firm can be maximized, or the cost of capital minimized by adjusting the ratios of debt to equity. Atrill (2009) suggests that according to the traditional theory, capital structure decision making is very important. The traditional theory points out that the cost of loan capital (debt) is cheaper than the cost of ordinary shares (equity) and increasing levels of borrowing will decrease the overall cost of capital of the business. Cohen (2005) adds that the traditional view or theory at its simplest, proposes that a firm's leverage (as measured by its debt/equity ratio) is significant in determining its cost of capital, and in consequence will affect the value of the firm. Thus, if we begin with a firm entirely financed by equity, as it acquires increasingly more debt it will find its cost of capital diminish up to a point, after which it will increase. This means that there will be a debt/equity ratio which gives the lowest WACC, at which point the value of the firm will be maximized for a given stream of cash flows. The rationale for this U-shaped WACC curve is quite straightforward: because the cost of debt is typically lower than the cost of equity, increasing leverage will initially act to lower the weighted average cost of capital. However, further increases in debt will raise the cost of capital due to increasing risk: both (potential) external providers of funds and current shareholders will seek for higher return on their funds to compensate them for the increased risk of additional debt.

Cost of Capital Approach: Cost of capital is critical to the long-term success of the firm and maintenance of the market value for its stock. This is the rate of return a given project must earn. Because a firm tries to maintain a target capital structure, which is the desired optimal mix of debt and equity financing, it should use the weighted average cost to decide on investments. This section specifically focuses on the long-term fixed-asset investments, because they are more permanent. There are four basic sources of long-term funds that businesses use: long-term debt, preferred stock, common stock, and retained earnings. It is predominantly the cost of capital that influences capital structure. Damodaran (2001) asserts that by altering the weights of the different components of capital firms might be able to change their overall cost of capital, that is, either through increasing debt or equity. The cost of capital approach therefore suggests the estimation of the costs of capital and looking for the mix of debt and equity that yields the lowest cost of capital for the firm. At this cost of capital, Damodaran (2001) argues that the value of the firm is maximized. The cost of capital consists of the cost of debt and cost of equity. Lewellen (2006) asserts that the cost differential between internal and external equity suggests that profitable firms with internal cash should have less leverage than firms that use external finance (holding all else constant).

If firms lever up until the costs of financial distress outweigh the tax advantages of debt, firms with more internal equity will choose lower leverage: a dollar of debt substituted for retained earnings yields fewer tax savings than a dollar of debt substituted for external equity. According to Cohen (2005) the specific cost of each source of capital is the after-tax cost of getting financing today. The author goes on to emphasize that the cost of each source of capital reflects the risk of the assets the firm invests in. A firm that invests in assets having little risk in producing income will be able to bear lower costs of capital than a firm that invests in assets having a higher risk of producing income. Moreover, the cost of each source of funds reflects the hierarchy of the risk associated with its seniority over the other sources. For a given firm, the cost of funds risked through debt is less than the cost of funds from preferred stock which, in turn, is less than the cost of funds from common stock. Cost of debt: Kretlow (2001) defines cost of debt as the rate of return required by the firms' creditors. For a debt issue or loan capital this rate of return often denoted by (Kd) and is equated to the interest. Van Horne (2002) refers to explicit cost of debt which is interest on debt as a factor to consider in capital structure. Therefore, companies consider the interest rate on bank loan, debenture interests, and dividends on preferred stock before issuing debt.

- Cost of Debt: According to Cohen (2005) at its simplest, the cost of debt is the cost incurred by the firm when it acquires funds through borrowing. Brealey and Meyers (2001) state that there are actually two costs of debt finance. The explicit cost of debt is the rate of interest that bondholders demand. But there is also an implicit cost, because borrowing increases the required return to equity.
- Cost of Preferred Stock: Cohen (2005) known as preferred stock in the United States, preference shares are valued in much the same way as debt. The major differences between preference shares and debt in the UK are: debt is subject to a tax-shield effect, as it is effectively tax deductible; dividends on preference shares are not tax deductible, the interest payments on debt are a legal obligation to be met by the company, whereas dividends on preference shares are paid at the discretion of the Board of Directors. In reality, the dividend on UK preference shares is often at a fixed rate, but because dividends are paid out of profits (as with ordinary shares) payment is dependent on company profitability.
- Cost of equity or Common Stock: Kretlow (2001) cost of equity capital to the firm is the equilibrium rate of return required by the firm's stock investors. Equity can be raised internally through retained earnings or externally through sell of new common stock. Cost of equity can be estimated using the dividend valuation model approach.

#### SCOPE OF THE STUDY

The scope of the study is limited to 10 selected Zimbabwe Stock Exchange listed companies. These companies were randomly selected.

#### **ANALYSIS OF THE STUDY**

TABLE 1: SECONDARY DATA FROM PUBLISHED FINANCIAL STATEMENTS

Company	Debt	Equity	Debt/Equity Ratio	Basic EPS
CAPS Holdings	25 674 712	61 159 390	41.98%	0.63
Delta	22 811 000	211 617 000	10.78%	4.50
Hwange	23 808 559	58 795 919	40.49%	7.03
AICO	33 467 000	116 552 000	28.71%	1.68
CBZ	48 513 752	99 256 929	48.88%	5.18
Cairns group	2 618 849	9 199 779	28.47%	0.01
Seedco	12 554 695	70 014 675	17.93%	9.05
Zimplow	600 550	11 286 811	5.32%	0.19
Interfresh	3 738 719	12 384 489	30.19%	0.008
Zimre	797 882	39 248 983	2.03%	0.26
ZPI	1 248 813	72 198 838	1.73%	0.16

From table 1 above the capital structure approach is evident as debt is used to some level and beyond a certain level the weighted average cost of capital according to literature (Gitman, 2005) will start to rise as noticed in the published financial statements of CAPS Holdings (included for comparisons purposes only) which had a debt/equity ratio of 41.98%, and performed badly because of huge interest payments obligation. Hwange and CBZ had debt/equity ratios of 40.49% and 48.88%

respectively and performed extremely well compared to CAPS the reason for this performance is the industry differences and characteristics between the pharmaceutical industry, the mining industry and the banking industry. The evidence agrees with Gitman (2005) who states that the level of debt, that is, (financial leverage) that is acceptable for one industry or line of business can be highly risky in another because different industries and lines of business have different operating characteristics. A debt/equity ratio of 41.98% for CAPS is on the high side but for CBZ 48.88% and Hwange's 40.49% seem to be in the optimal range side.

#### **TABLE 2: WACC CALCULATED AT BOOK VALUES**

Company	EPS	Share Price	Ke %	Kd %	Equity	Debt	Weight of Equity	Weight of Debt	WACC %
Delta	4.5	74.92	6.00	11.00	211,617,000.00	22,811,000.00	5.42	2.140708	7.56
Hwange	0.32	45	0.07	10.00	58,795,919.00	23,808,559.00	0.05	6.340919	6.39
AICO	1.68	20	8.00	12.00	116,552,000.00	33,467,000.00	6.22	4.907872	11.12
CBZ	2.18	12	18.00	11.00	99,256,929.00	48,513,752.00	12.09	7.222695	19.31
Cairns group	0.01	1.2	1.00	11.00	9,199,779.00	2,618,849.00	0.78	4.874904	5.65
Seedco	9.05	110	8.00	10.00	70,014,675.00	12,554,695.00	6.78	3.345106	10.13
Zimplow	0.19	7	3.00	10.00	11,286,811.00	600,550.00	2.85	1.111441	3.96
Interfresh	0.01	0.48	2.00	12.00	12,384,489.00	3,738,719.00	1.54	5.101455	6.64
Zimre	0.16	1.3	12.00	12.00	72,198,838.00	1,248,813.00	11.80	0.374061	12.17
ZPI	0.26	1.45	18.00	11.00	39,248,983.00	797,882.00	17.64	0.438322	18.08

The findings from the book value WACC show that the cost of capital figures are relatively lower compared to in the table3 below, which was based on survey results. The reason for this could be the historical nature of book values, the shortcomings of the earnings method used which ignores risk and economic variables.

#### **TABLE 3: WACC DERIVED FROM SURVEY DATA**

Company	Cost of Equity	Cost of Debt	Weight of Equity	Weight of Debt	WACC	Debt/Equity Ratio
Delta	0.13	0.16	0.714285714	0.285714286	0.138571	0.40
Hwange	0.25	0.35	0.833333333	0.166666667	0.266667	0.20
AICO	0.42	0.38	0.724637681	0.275362319	0.408986	0.38
CBZ	0.12	0.24	0.833333333	0.166666667	0.140000	0.20
Cairns group	0.37	0.31	0.700000000	0.300000000	0.580000	0.43
Seedco	0.39	0.20	0.900900901	0.099099099	0.019820	0.11
Zimplow	0.25	0.26	0.943396226	0.056603774	0.250566	0.06
Interfresh	0. 15	0.10	0.869565217	0.130434783	0.013043	0.15
Zimre	0. 26	0.13	0.943260000	0.056740000	0.252623	0.06
ZPI	0. 17	0.12	0.878763000	0.121237000	0.163938	0.14

The weight of debt was deduced as follows, if debt/equity ratio is 40% then weight of debt is 40/(100+40)= 0.2857 and weight of equity is 100/(100+40)=0.7143. The results of the survey showed that debt/equity ratios range from 6% to 43%. The results show shat debt does not exceed equity in magnitude mainly because of risk, highly geared firms are more risky compared to all equity financed firms or lowly geared firms. Debt is cheaper than equity but this does not ensure that a company can be all debt financed as this increases bankruptcy costs and potential for financial distress.

**TABLE 4: DESCRIPTIVE STATISTICS** 

	Mean	Std. Deviation	N
WACC	.2272	.19418	10
Capital Structure	.2411	.14210	10

The mean for Zimbabwean listed companies surveyed in the study for WACC is 0.2272 with a standard deviation of 0.19418 implying that capital structure should be 0.2272+/- 0.19418 that is ranging between 0.03302--0.42138 which agrees with observations from published financial statements, whilst the capital structure (debt/equity ratio) has a mean of 0.2411 and a standard deviation of 0.14210, implying that debt/equity should be 0.2411+/- 0.14210, that is ranging between 0.09900--0.3832.

**TABLE 5: CORRELATIONS** 

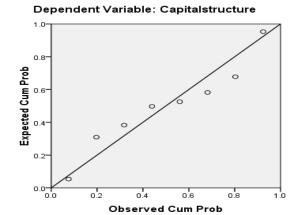
		WACC	Capital Structure
WACC	Pearson Correlation	1	.630*
	Sig. (1-tailed)		.047
	N	10	10
Capital Structure	Pearson Correlation	.630*	1
	Sig. (1-tailed)	.047	
	N	10	10

<sup>\*.</sup> Correlation is significant at the 0.05 level (1-tailed).

The correlations results are significant at the 95% confidence level; capital structure is dependent on the WACC with a Pearson correlation of 0.630. The evidence from the survey confirms that the cost of capital is a determinant of capital structure (debt/equity ratio).

FIGURE 1: REGRESSION ANALYSIS GRAPH

#### Normal P-P Plot of Regression Standardized Residual



In the figure 1 above the observed and cumulated probabilities of WACC and capital structure (debt/equity) depended variable shows that the relationship is a linear, high WACC is associated with high debt/equity ratio, the capital structure. The WACC is the independent variable and the debt/equity (capital structure) is the dependent variable, given the WACC the debt/equity ratio (capital structure) can be predicted. Therefore, the financial manager has to determine the target WACC and ascertain the proportion of debt and the proportion of equity required.

#### FINDINGS AND SUGGESTIONS

The above findings suggest that the determinants of capital structure of the Zimbabwe listed companies are mainly the cost of capital, the weighted average cost of capital (WACC) is used in target capital structure policy setting and analysis should start from the book value WACC, whereas the weighted average cost of capital formula calls for market values when setting target capital structure.

Suggestion 1: Capital structure as denoted by the debt/equity ratio or the financial debt to equity ratio (FD/CP ratio) is dependent on the WACC. The evidence from the survey confirms that the cost of capital is a determinant of capital structure (debt/equity). Capital structure (debt/equity ratio) depends on the WACC. The high WACC is associated with high debt/equity ratios and the cost of capital is a predominant consideration for making capital structure decisions in the Zimbabwe Stock Exchange listed companies.

Suggestion 2: The capital structure decision is very important. In general, the analysis of the financial statements of the selected Zimbabwean listed companies revealed the evidence that companies with debt generally perform better than the all equity financed companies, the earnings per share (EPS) and Share Prices are generally higher.

Suggestion 3: The majority of managers in the Zimbabwe Stock Exchange listed companies maintain a target debt to equity ratio and rebalance their capital structure to move towards their target whilst very few of managers have a no target policy at all. Few managers maintain a strict target and most managers maintain a target range and a considerable number of managers consider a flexible target as important.

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