

The Determinants of Capital Structure in Zimbabwe during the Multicurrency Regime

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Abstract

Recent research has focused on the influence of institutional environment on capital structure decisions of firms, therefore this study examined capital structure choices of Zimbabwean listed firms during the multicurrency regime. Using a balanced panel of 43 companies listed on the Zimbabwe Stock Exchange, this study first examined whether the debt ratios of these firms significantly changed over the period 2010-2013. The results from the one-way repeated measures ANOVA show that the mean debt ratio did not significantly change over the four years. The second objective was to determine factors influencing capital structure choices of these firms under a multicurrency regime and the results show that profitability, tangibility and firm size were significant factors but had different signs from those previously reported under different regimes. Therefore, the current study provides evidence to suggest that the determinants of capital structure may change in response to the institutional environment.

Keywords: capital structure, debt ratios, multicurrency regime, Zimbabwe

1. Introduction

In recent years, debate in corporate finance focusing on determinants of capital structure choices of firms in both developed and developing countries has received increasing attention. This debate is built upon Modigliani and Miller's (1958) proposition that the mix between debt and equity does not affect the firm's cost of capital. However, this proposition is based upon the assumption that markets are perfect. In reality, however, market imperfections such as corporate taxation, asymmetric information and agency problems seem to have a great influence on firm's capital structure choices. More importantly, market imperfections seem to differ across countries and over time, such that researchers are now focusing on institutional environment (e.g. corporate governance systems, regulatory frameworks, legal systems and economic climates) as a major factor influencing capital structure decisions of firms (Booth, Aivazian, Demircuc-Kunt and Maksimovic, 2001; Mutenheri, 2003; Chiwandamira, 2009 and Oztekin and Flannery, 2009)

The focus of this study is on the determinants of corporate structure decisions of firms during multicurrency regime in Zimbabwe. Zimbabwe adopted the use of multiple currencies (United States Dollar, British Pound, Euro, South African Rand and Botswana Pula, among others) in February 2009, as a way of curbing hyperinflation. The adoption of multiple currencies in Zimbabwe brought in sanity to the economy, for example the Zimbabwe Stock Exchange which had stopped all operations resumed the operations and financial institutions also resumed issuing of debt. However, dollarization had adverse effects on most businesses. The general public had low confidence in the financial institutions and hence developed a tendency of excluding the financial system in their transactions. Chikoko (2012) argues that banks were used only for transitory transactions while most business activities were done outside the financial system. This had a negative effect on financial institutions' ability to mobilize funds. Therefore, some businesses closed while others down sized their production capacities because they could not cope with the currency reform. However, business activities done within the financial system improved over time. In this context, it is therefore interesting to know whether debt ratios of Zimbabwean firms significantly increased over the period 2009 to 2013 and whether the determinants of capital structure decisions proposed in the literature still hold under the multicurrency regime.

Objectives of the study

- To assess whether the debt ratios of companies listed on the Zimbabwe Stock Exchange have significantly changed over the period 2010-2013
- To examine the determinants of capital structure of companies listed on the Zimbabwe Stock Exchange during the multicurrency regime

2. Literature review

2.1 Theoretical literature review

Various theories have been proposed in an attempt to understand capital structure decisions of firms in both developed and developing countries and the theories that have received much attention in the finance literature are the Modigliani and Miller theory, the Asymmetric Information, the Perking Order Hypothesis, the Signalling Approach, and the Agency Cost theory.

Modigliani and Miller (1963) considered the tax benefits of debt and concluded that a high proportion

of debt in a company's capital structure reduces the cost of capital and therefore increases the value of the firm. However, this theory can be criticised on the fact that it does not take into consideration debt obligations such as financial distress and bankruptcy

The Pecking order hypothesis is mainly associated with Donaldson (1961) and major proponents who developed the theories were Myers and Majluf (1984). The theory suggests that companies maximize value by systematically choosing to finance new investments with the cheapest available source of funds. Generally, the features of this theory are that firms prefer internal finance because it is the cheapest form of finance. In the event that external finance is required, firms issue the safest security first, that is, they start with debt, then possibly hybrid securities such as convertible bonds, then perhaps equity as a last resort. The implication of this theory is that there is a negative relationship between firm profitability and debt ratio.

The Signalling approach hinges on the idea that managers have better information than investors and therefore the decision to increase leverage communicates managers' confidence in the firm's prospects to increase the value of the shares (Niu, 2008). The Agency costs theory states that the firm's capital structure is determined by agency costs. The Agency costs are believed to arise due to conflicts of interests between firms' owners and managers (Jensen and Meckling, 1976). This conflict of interest between shareholders and managers arises from the fact that managers would want to pursue their goals at the expense of shareholders. Thus a monitoring device would be required. An appropriate capital structure would alleviate the agency problems and reduce agency costs. Secondly, the Agency theory asserts that conflict between lenders and shareholders create incentives for shareholders to invest in sub-optimal way. Therefore lenders take actions to protect themselves by requiring tangible assets as collateral. Many valuable fixed assets should give a higher debt ratio because the firms can offer security for loans.

Lastly, the Asymmetric information theory assumes that firm managers and insiders possess private information about the firm's characteristics of return or investment opportunities that are rarely known by outside investors (Myers, 1984). Capital structure choices under this framework are designed to mitigate the inefficiencies of investment decisions that are caused by information asymmetric (Myers, 1984) or used as a signal to outside investors about the information of insiders. Bauer (2004) suggests that less information of external investors can lead to undervaluation of shares therefore information disclosure must be regarded as an important factor. According to Myers (1984), the firm's equity will be mispriced by the market when investors obtain less information of one firm's assets value than the firm's current insiders. Furthermore, mispricing may make a net loss to the firm's current shareholders if firms issue equity to absorb capital for a new investment.

2.2 Empirical Evidence on capital structure decisions.

Studies that were done in the past show that a number of factors affect capital structure choice. The most commonly and popular determinants are profitability, tangibility size, firm growth, non-debt tax shield, tax and liquidity. The impact of each of these factors on capital structure decisions will be reviewed below.

Profitability

The empirical studies that have examined the impact of profitability on capital structure decisions have found mixed results. Myers (1984) found that firms that are profitable and having the capacity to generate high earnings use less debt capital to equity than those which do not generate high incomes. This negative relationship between debt ratio and profitability is supported by Titman and Wessels (1988) Rajan and Zingales (1995), Mutenheri and Green (2003) and Mazhar and Naser (2007). However, Huang and Sang (2002) Sarkar and Zapatero (2003) and Chidoko *et al* (2012) found a positive relationship between profitability and debt ratio.

Tangibility

It is believed that in an uncertain world, with asymmetric information, the asset structure of a firm has a direct impact on its capital structure since a firm's tangible assets are the mostly widely accepted sources for bank borrowing and raising secured debt.

Size

According to the Trade off theory, larger firms can borrow at relatively lower rates than smaller firms due to high level of noncurrent assets, economies of scale, stable cash flow and credit worthiness (Marsh, 1982). Several studies have found a positive relationship between size and leverage, for example, Mutenheri and Green (2003) and Chidoko *et al* (2012). The agency theory suggests a significant positive relationship between tangibility and debt ratios since tangible assets can be used as collateral. This relationship is supported by empirical evidence, for example, Titman and Wessels (1988), Shar and Hijazi (2000) and Shar (2007).

Growth opportunities

Myers (1977) suggested that firms with future growth opportunities should use more equity financing. The argument is based on the view that a higher leveraged company is more likely to pass up profitable investment opportunities. On the same note, the Pecking order theory asserts that internal funds are not sufficient for growing firms to meet the requirements of growth; hence external borrowed funds are needed. The Pecking order theory assumes a positive relation between debt ratio and growth. The firms with higher growth

opportunities may invest in high risk projects increasing the chances of bankruptcy and thus lowering the opportunity of growth. Empirical studies by Myers (1984), Marsh (1982) and Cassar and Holmes (2003) have reported a positive relationship between leverage and firm growth.

Non debt tax shield

In their seminal paper Modigliani and Miller (1963) asserts that interest tax shields create strong incentives for firms to increase leverage. The Non debt tax shield decrease the earnings of the firm and this result in the reduction of expected level of interest tax savings which later reduces the advantage of using high debt financing (Ahmad *et al*, 2011). The Non debt tax shields are regarded as substitutes for the tax benefits of debt financing (Kuczynski, 2005). Therefore the tax advantages of leverage decrease when other tax deductions like depreciation increase. The empirical evidence suggests a negative relationship between non debt tax shield and debt ratio (Titman and Wessels, 1988; Saltang and Sang, 2002; Mutenheri and Green, 2003)

Taxation

The impact of taxation on leverage is mixed. Little support is found in the empirical analysis about the relevance of tax to capital structure decision. Titman and Wessel (1988) reported an insignificant relationship between effective tax rate and debt ratio, while Mackie (1990), Mutenheri and Green (2003), Huang and Sang (2006) and Chidoko *et al* (2012) reported a negative relationship.

Liquidity

The Pecking order theory states that firms prefer internal financing to external financing. Following this argument, it therefore means firms have to create liquid reserves from retained earnings. If the liquidity reserves become or continuously become suitable and enough for investments the firm will less likely need to raise external funds. Hence liquidity is negatively related to debt ratio. Mutenheri and Green (2003) reported a negative relationship on liquidity and debt ratio which is in line with the arrangements of Pecking order theory.

3. Research Methods

Model specification

The capital structure choice of the firms is estimated by the following equation;

$$\text{Debt} = \alpha + \beta_1 \text{NDTR}_{it} + \beta_2 \text{PROF}_{it} + \beta_3 \text{TAX}_{it} + \beta_4 \text{TANG}_{it} + \beta_5 \text{SIZE}_{it} + \beta_6 \text{GROW}_{it} + \beta_7 \text{LIQUID}_{it} + U_{it}$$

Where;

Debt = debt ratio

NDTR = non debt tax ratio

PROF = profitability

TAX = effective tax rate

TANG = tangibility

SIZE = firm size

GROW = firm growth

LIQUID = liquidity ratio

α intercept (constant value)

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ are the slope of coefficients, U_{it} is the error term, i is cross sectional unit, t time period.

Data source and variables

This study analysed the capital structure decisions of firms listed on the Zimbabwe Stock Exchange over a period of four years (2010-2013). In this study, the dependent variable (debt ratio) was defined as total liabilities divided by total assets and seven firm characteristics were included as independent variables. The operational definitions of these independent variables as well as their expected signs are shown in table 1

Table 1: Definitions of independent variables and their expected signs

Variables	Measurement in this study	Theoretical Expected sign
Non –debt tax shield ratio (NDTR)	Depreciation/total assets	(-)
Profitability (PROF)	Profit before interest and tax/total assets	(-) or (+)
Tax (TAX)	Tax charge for the period/earnings before tax	(+)
Tangibility (TANG)	Noncurrent assets/total assets	(-) or (+)
Size (SIZE)	Natural logarithm of noncurrent assets	(-) or (+)
Growth (grow)	Total noncurrent assets (current year)-total noncurrent assets (previous year)/ total noncurrent assets (previous year)	(-) or (+)
Liquidity (liquid)	Current assets /current liabilities	(-)

4. Results and discussion

Debt ratios for 43 companies listed on the Zimbabwe Stock Exchange were computed for the period 2010-2013 and the results are shown in Table 2 below. These results show that the highest debt ratio ($M = 0.5156$, $SD = 0.3899$) was recorded in 2013 while the lowest debt ratio ($M = 0.4723$, $SD = 0.2424$) was recorded in 2011. To test for a significant difference in mean debt ratios across the four years, a one-way repeated measure ANOVA was used. The results of the one-way repeated measures ANOVA (Table 3) show that the mean debt ratio did not significantly change over the four years, $F(3, 126) = 0.45$, $p = 0.7207$.

Table 2: Debt ratios for the period 2010-2013

Year	Number of Companies	Mean	Std. dev
2010	43	0.4937	0.3752
2011	43	0.4723	0.2424
2012	43	0.4951	0.2670
2013	43	0.5156	0.3899

Table 3: Results of the One-Way Repeated-Measures ANOVA

Source	ms	df	F-value	P-value
Overall model	0.3113	45	10.33	< 0.0001
Firm	0.3325	42	11.04	< 0.0001
Time	0.0134	3	0.45	0.7207
Error	0.0301	126		

In order to test whether a fixed effects or random effects model is more appropriate for estimating the empirical regression in this study, a Hausman test was performed and the results show that the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator cannot be rejected, $\chi^2_3 = 6.49$, $p = 0.4835$. Therefore, a random effects model was estimated and the results are reported in Table 4 below.

Table 4: Random-effects regression results

Dependent variable: Debt ratio

Variable	Coefficient	Std. dev	t-statistic
Constant	1.2589 ***	0.3446	3.6500
Non-debt tax	0.3497*	0.2056	1.7000
Profitability	0.3534 ***	0.1169	3.02 00
Tangibility	-0.2321***	0.0659	-3.5200
Size	-0.0384 **	0.0190	-2.0200

Notes: Significant at * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

Tax, growth and liquidity variables were found to be highly insignificant and were therefore deleted from the model in order to improve efficiency. The random effects regression results show that the coefficient on Non-debt tax shield variable is positive but insignificantly different from zero at the 5% level of significance. The profitability variable has the expected positive sign which is significantly different from zero at the 1% level of significance. However, these results do not support the prediction of the Perking order theory and the empirical studies by Titman and Wessels (1988), Rajan and Zingales (1995), Mazhar and Naser (2007), Mutenheri (2003) and Chidoko *et al* (2012) who observed a negative relationship between profitability and debt ratio. Few empirical studies (for example, Sarkar and Zapatero, 2003 and Bauer, 2004), however have reported a positive relationship between profitability and debt ratio. A possible explanation in the Zimbabwean context is that the economic crisis had eroded firms' retained earnings and therefore firms had to borrow in order to recapitalise. In this case profitable firms were able to borrow more.

The estimated coefficient on tangibility is negative and significant different from zero at the 1% level of significance and thus implying that firms with more fixed assets tend to have lower debt ratios. This negative relationship between debt ratio and tangibility is inconsistent with the trade off theory and agency theory and the empirical literature (Titman and Wessels, 1988; Rajan and Zingales, 1995; Shar and Hijazi, 2000; Friend-Lung, Huang and Song, 2002; Booth *et al*, 2002; Mutenheri, 2003; Hajazi and Tarig, 2006; Shar, 2007; Ahmad *et al*, 2011 and Chidoko *et al*, 2012). This negative relationship is difficult to explain. Probably, as firms were coming out of the crisis they resorted to selling fixed assets as a way of raising funds for investments and thus borrowing less.

The estimated coefficient on size variable is negative and significant at the 5% level of significance implying that firm size has a negative impact on borrowing decisions. Thus, the prediction of the pecking order theory is supported in this study.

5. Summary and conclusion

The study has found profitability, tangibility and firm size to be significant determinants of capital structure decisions among Zimbabwean firms during the multicurrency regime. The current study provides evidence that the determinants of capital structure may change in response to regime change. For example, Mutenheri (2003) found tax, non-debt tax, growth and liquidity to have a significant impact on capital structure decisions for the Zimbabwean corporate sector in the period 1995-1999. However, these variables were found to be insignificant in the current study. Although the current study found a significant relationship between profitability, firm size tangibility and debt ratio, these relationships have different signs from those reported by Mutenheri (2003).

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