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## Article

### Determinants of bank capital structure : does bank ownership matter? : evidence from Tanzania

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## DETERMINANTS OF BANK CAPITAL STRUCTURE – DOES BANK OWNERSHIP MATTER? EVIDENCE FROM TANZANIA

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### Abstract

*This study examined the determinants of capital structure of commercial banks operating in Tanzania using panel financial data of 14 banks drawn from 1998 to 2010 on a quarterly basis. A multiple-indicators-multiple-causes structural equation modelling was applied, with a consideration for structural break. In order of importance, bank size, profitability, non-tax depreciation shield, growth and volatility have been determined to be key determinants in capital structure decisions of commercial banks in Tanzania. Controlling for the ownership, growth of the banking firms is not significant in determining the capital structure among foreign banks. The study contributes to the understanding of commercial banks' capital structure in relation to the ownership structure in emerging markets and provides a policy direction for foreign bank entry into developing countries.*

**Key Words:** Commercial Banks, Capital Structure, Bank Capital

### INTRODUCTION

Commercial banks (CBs) as business entities are important links to economic agents and, therefore, form an exceptional role for economic development (Fakiyesi, 1999). CBs depend on their role in resources transformation and business financing. Worldwide, businesses get more than 75 percent for their financing needs from the CBs (Mishkin, 2008). CBs in Tanzania command more than 80 percent of the financial assets in the economy (Bank of Tanzania [BoT], 2009b). Banking firms have a fundamental influence on capital allocation, risk-sharing and economic growth (Freixas & Rochet, 1997). Bank capital has impact on deposit taking capacity as well as the amount of loans to be provided to the economy. High capital ratios are believed to provide a safety net to prevent insolvency whereas low capital ratios limit banks to raise capital in case of credit crunch (Marini, 2003).

Given the role of CBs and their impact on the economy, various studies have been conducted regarding bank capital levels as well as their capital structure. Scholars such as Berlin, John and Saunders (1996) have argued that banks are reluctant in raising equity capital. One of the reasons is that the usual corporate finance doctrines seem not to fit well with the banking sector given nature of its activities (Berger, DeYoung, Flannery, Lee, & Öztekin, 2008; Chang, Lee, & Lee, 2009; Rajan & Zingales, 1995) because banks are highly leveraged compared to non-financial firms. Banks seem to maintain just regulatory capital levels and, as long as deposits are secured, they seem to secure many deposits from the public without affecting their capital positions. Moreover, there are not many hard choices for debt and equity levels for the banking sector (Berlin, 2011).

In Tanzania, the International Monetary Fund (2010) reports CBs in the country are heavily capitalised, with a heavy concentration of their investments in government securities, which led to interest risk increase and lack of funding to other economic activities. Most studies regarding bank capital and bank capital structure have been carried for more than two decades, mostly concentration was for the developing countries. Tanzania has been struggling to attract investors in the banking and financial services sector. However, a critical review of its capital structure for foreign

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and local banks is an important aspect which has not been undertaken in the Tanzanian environment to the best knowledge of the authors.

### Statement of the Problem

Commercial banks in Tanzania have been struggling to raise external capital from private sources. There were more than 52 CBs in Tanzania by the end of 2012. Tanzania is one of the countries which witness a high growth of investors in the banking sector. At the end of 2012, only two local commercial banks—National Microfinance Bank PLC (NMB) and CRDB Bank PLC (CRDB)—had listed shares on the Dar es Salaam Stock Exchange (DSE). NMB listed 20 percent of the government-owned shares in 2008 whereas the CRDB floated seven percent of the shares owned by the Danish Development Agency (DANIDA) in 2009. One community (regional) bank—the Dar es Salaam Community Bank (DCB)—issued initial public offering (IPO) for 65 percent of its share capital at the DSE, which were listed in 2008. During the same time, Standard Chartered Bank listed a Tanzanian Shillings (TZS) 8.0 billion bond in 2005, with five-year maturity and Barclays Bank listed three bonds, one in 2005 and two bonds in 2006 worth TZS 10.0 billion each, with a five-year maturity. Although most of the banks operating in the country are facing capital needs for expansion and tapping the increased need for financing the private sector, no other bank has issued IPOs or has sought debt finance from the stock markets. According to the Bank of Tanzania (2009b), CBs are financed by deposits for about 82 percent of total financing. Thus, it is important to examine firstly the determinants of CBs capital structure as well as their bank capital composition. Foreign bank entry has not probably changed the injection of new capital into the economy which is sufficient and legally bound to accelerate the financial access especially in poor rural areas. As noted elsewhere, foreign banks have had no problem with regulatory capital requirements by the regulators in African markets (De Haas & Naaborg, 2006).

### LITERATURE ON BANK CAPITAL STRUCTURE

Bank capital is an important item in the bank's operations. The need for liquidity, safety, and soundness of commercial banks has been widely accepted as one based on the risk-based capital requirements. Bank of International Settlement (BIS) guidelines require banks to maintain a risk-adjusted assets equivalent to four and eight percent for tier I and tier II, respectively. The minimum specified capital ratio ascertains justification for a CB to operate as a banking firm. The adoption of the BIS bank capital standards, known as Bank Capital Accord II, has created a separation between tier I and tier II capital for CBs. In the context of equations 1 through 5, total capital  $K_t$ , consist of both tier I and tier II capital such that:

$$K_t = K_t^{T1} + K_t^{T2} \quad (1)$$

where,

$$K_t^{T1} = \sum RE_t + CS_t + PS_t + LLR_t \quad (2)$$

$$K_t^{T2} = PSC_t + SD_t \quad (3)$$

Such that

$K_t^{T1}$  = Tier I capital at period  $t$

$RE_t$  = Retained earnings incrementing capital in period  $t$

$CS_t$  = Common stock

$PS_t$  = Preference shares with non-commutative dividends

$LLR_t$  = Loan loss reserves provision at time  $t$

$K_t^{T2}$  = Tier II capital at period  $t$

$PSC_t$  = Preference stocks with cumulative dividends

$SD_t$  = Subordinated long-term capital debentures

BIS issued a new bank capital guideline known as the Basel III capital accord in June 2011. The regulations focuses on highly robust measures of the bank capital intended to be fully implemented by 2020 (Bank for International

Settlements [BIS], 2011; Octavia & Brown, 2010). BIS official guidelines require banks to maintain tier I capital that constitutes only incremental retained earnings and common equity. The new guidelines are a result of mitigating failures of the 2007-2009 financial crisis.

There are different views with regard to the effect of Basel III on economic development (Slovik & Cournède, 2011), as well as effect of the bank capital on portfolio behaviour of commercial banks (Admati, DeMarzo, Hellwig, & Pfleiderer, 2010; Miles, Marcheggiano, & Yang, 2011).

Changes in capital of the bank can be presented as:

$$\Delta K = r_s GS + r'_s GS + r_l L \quad (4)$$

where:

$\Delta K$  = Change in capital base of the banking firm

$GS$  = Investment in Government Securities

$r_s$  = Return on the government securities

$r'_s$  = Change from the beginning period market value of government securities

$L$  = Loans of bank made at interest  $r_l$

### Capital Structure Theories

Capital Structure is defined as a mix of debt and equity capital maintained by a firm. The capital structure of a firm is important as it is related to the firm's ability to meet its stakeholders' needs. Modigliani and Miller (1958) were the first ones to landmark the topic of capital structure, arguing that capital structure was irrelevant in determining a firm's value and its future performance.

#### Capital structure irrelevant theorem

Modigliani and Miller (1958) were the pioneers and advocates of the capital structure theory through what was named as "capital structure irrelevance proposition." The Modigliani and Miller (MM) theory assumed that business firms have a particular set of expected cash flows. Firms then choose certain proportions of debt and equity to finance their assets and, thus, divide their cash flows among several investors. Investors and firms are assumed to have equal access to financial markets and, thus, can access certain levels of leverage. The MM proposes that investors can create any leverage levels wanted but not offered, or get rid of any leverage that the firm took on but was not wanted. For this proposition, the firm's leverage has no effect on the market value of the firm. The MM theory provides propositions for find out why finance matters to business firms although it cannot be relevant to the practical world because a debt position of a given firm can be affected by various factors such as profits, collateral and growth of the firm. Consequently, this apparent shortcoming led to development of trade-off theory and pecking order theories discussed in the next sub-sections.

#### Trade-off theory

The trade-off theory was first developed by Modigliani and Miller (1965) whereby they explained that the most favourable level of capital structure can be determined using benefits and costs associated with debt financing. This would be more like a balance between tax shield from interest expense and the cost associated with financial distress. The trade-off theory of capital structure contends that organisations with better profitability should favour debt financing rather than equity financing to take benefits from the tax shield. Researchers have grouped the trade-off theories into two main groups: static trade-off theory and dynamic trade-off theory (Brennan & Schwartz, 1984; Jensen, 1986; Jensen & Meckling, 1976; Kane, Marcus, & McDonald, 1984).

The static trade-off theory affirms that business firms have optimal capital structures, which they determine by trading off the costs against benefits of using debt and equity. One of the benefits of use of debt is the advantage of a debt tax shield. The dynamic theory considers the effect of tax savings in the use of debt. The firm's leverage responds less to short-run equity fluctuations and more to long-run value changes (Fischer, Heinkel, & Zechner, 1989; Goldstein, Ju, & Leland, 2001; Strebulaev, 2007).

### **Pecking order theory**

The Pecking order theory was developed by Myers in 1984 (Myers, 1984; Myers & Majluf, 1984). The theory proffers that financing of a business firm's operations depends on the order of costs of funds. Firms use retained earnings first to finance investments to fill a gap that is created due to an asymmetry of information. The assumption here is that firms have a distinct preference of using internal funds to finance investments. Firms may or may not acquire external financing, and if they do, they will choose among different external finance sources in a bid to minimise additional costs of asymmetric information. The theory predicts that managers will follow a pecking order, using up internal funds first, then using up risky debt, and finally, resorting to equity. In the absence of investment opportunities, firms retain profits and build up financial slack to avoid having to raise external finance in future.

### **Theory of bank capital structure**

The Bank capital theory (Diamond & Rajan, 2000; Harris & Raviv, 1991) advances that a banking firm's assets and functions are not the same as those of industrial firms and, thus, they do not suffer from asymmetric information costs (Gorton & Pennacchi, 1988). On the other hand, recent evidence shows that bank capital structure is completely determined by regulatory capital requirements and not related to standard determinants of capital structure (Slovik & Cournède, 2011).

According to the theory, banks may experience hardships in adjusting their capital structure in bad times because they will have little cash to pay down deposits and committed off-balance sheet cash outflows (Gropp & Heider, 2010). Under this theory, it is argued that banks hold capital only because they are required to do so by regulatory authorities. In this case, the amount of bank capital and, thus, the capital structure is determined by the bank capital requirements set by the regulatory authority.

Other arguments for bank capital structure rely on the fact that CBs hold high leverage ratios that make these institutions special. Unlike non-financial firms, bank liabilities are converted into assets and, in some cases, form part of collateral (such as time deposits). The bank liabilities are actually results of banking activities. In the meantime, regulations require that bank capital ratio should be maintained by banks given different levels of risk and non-compliance will lead to the bank to be subjected to penalties, and may be liquidated. Thus, on a daily basis, banks struggle to make the capital ratios look better to the eyes of regulators.

### **Review of Empirical Literature on Determinants of Capital Structure**

There is extensive literature on the determinants of capital structure. Capital structure is believed to have a causal-effect relationship (Mishkin, 2008) and, thus, the relationship can be modelled as a causal relationship by the use of a structural equation model (SEM) such that capital structure as an independent variable is a function of its dependent variables. The first study to pioneer the application of SEM to investigate the determinant of capital structure is a study conducted by Titman and Wessels (1988).

A study by Myers (1977) identified indicators of the capital structure of a business firm as a company's long-term debt, short-term debt, and convertible debt deflated by the market value of equity or the book value of equity. Chang *et al.* (2009) identified factors that affect capital structure of a firm as growth, firm size, collateral value of assets, profitability, volatility, non-debt tax shields, uniqueness and industry. A study by Chang *et al.* (2009) modified the variables from the work by Titman and Wessels (1988), whose work summarised and identified eight determinants of capital structure: growth, uniqueness, non-debt tax shields, assets collateral value, earnings volatility, profitability, industry classification, and size. However, the studies did not focus on the banking firms but generally on non-financial firms.

Yu (2000) found that the main determinants of capital structure of commercial banks to include bank size, profitability and liquidity. Thus the higher the liquidity the less the capital ratios for the CBs; and that bank size negatively correlates with the bank capital ratio. Using the qualitative research approach in the Nigerian banking system, Salawu (2007) concluded that in order of importance, ownership structure and management control, growth opportunity, profitability, size of the firm, uniqueness of the firm and its reputation, risk and cost of financial distress, earnings per share, tangibility, tax economies associated with debt financing and issuing cost were important determinants of the bank's capital structure. But the study did not use any financial indicators from the bank's balance sheet. Octavia and Brown (2010) indicated that capital structure of a bank can be explained by either book or market leverage ratios which are determined in a linear relationship by various factors that include size, profitability, dividends, market-to-book value, regulatory capital, economic growth and assets risk.

Various authors have been using various indicators as determinants of capital structure. As indicated before, there are studies that advocate for the use of standard indicators for firm capital structure to be the same for the banking

firms (Gorton & Pennacchi, 1988; Gropp & Heider, 2010; Kleff & Weber, 2008), although there are some notable differences as noted by Orgler (1983). Chang *et al.* (2009) derived various indicators for determining capital structure of commercial banks using a structural equation model, building on Titman and Wessels' (1988) study. Indicators that were drawn include the following:

**Growth:** Various indicators have been used in a study by Chang *et al.* (2009) on determination of growth of banking firm, which are research and development to sales (RD/S), capital expenditures to total assets (CE/TA), percentage change in total assets (PCTA), the ratio of market value to the book value of assets (MV/BVA), the ratio of market value to the book value of equity (MV/BVE), and research and development over total assets (RD/TA).

**Uniqueness:** Berger *et al.* (1997), Titman and Wessel (1988) and Chang *et al.* (2009) estimated uniqueness of companies by using research and development to total sales (RD/S) ratio.

**Non-Debt Tax Shields:** Chang *et al.* (2009) utilised operating income instead of the sales as used in Titman and Wessels (1988) to determine the Non-Debt Tax Shields.

**Collateral Value of Asset:** Titman and Wessels (1988) and Chang *et al.* (2009) employed inventory and gross plant and equipment to total assets (IGP/TA) as the indicator of the collateral value of the assets. However, Octavia and Brown (2010) utilised the total value of tangible assets as a proportion of book value of assets as determinants of collateral value of a banking firm.

**Profitability:** Kleff and Weber (2008) utilised the ratio of net interest income plus net commission income to total assets as determinants of bank profitability. Berger *et al.* (1997), Booth *et al.* (2001), Rajan and Zingales (1995), Chang *et al.* (2009), and Aikaeli (2006) used the return on assets as proxy for profitability measure, though they used different measures for earnings.

**Volatility:** Chang *et al.* (2009) with modification used the volatility measure as the standard deviation of the percentage change in operating income (STDGOI), coefficient of variation of ROA (CV (ROA)), coefficient of variation of ROE (CV (ROE)), and coefficient of variation of operating income divided by total assets (CV (OITA)).

**Size:** Aikaeli (2006) classified commercial banks in Tanzania as small, medium and large based on book value of assets. This is consistent with Frank and Goyal (2009), Gropp and Heider (2010), and Octavia and Brown (2010). To capture the size effect, Kleff and Weber (2008) utilised the natural log of total assets.

This study thus tests the following two hypotheses.

*Hypothesis 1: Capital structure of commercial banks is either positively or negatively influenced by the size of bank assets, volatility of earnings, profitability, growth, and non-debt tax shield.*

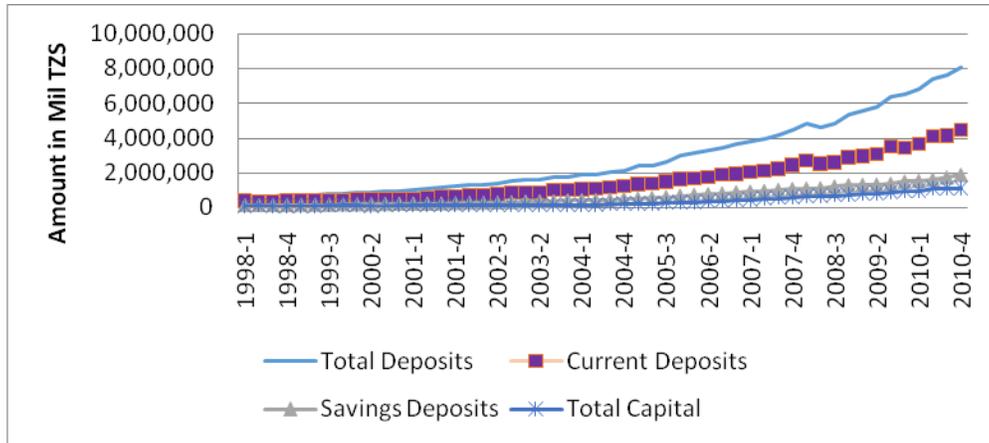
*Hypothesis 2: Determinants of capital structure i.e. size of bank assets, volatility of earnings, profitability, growth, and non-debt tax shield varies with the ownership of the bank.*

## **Banking Sector in Tanzania**

### ***Bank Capital and Liabilities***

The sampled banks for the study recorded an increase in the total deposits and liabilities held by the banks. The analysis indicates that banks have maintained a paid up capital that is just enough to cover the amount needed by the bank regulators, especially for foreign banks. The increase of the number of banks was an important factor for the increase in bank liabilities especially in terms of deposit mobilisation. The increase in the number of the banks fostered competition that forces the already established banks to expand and innovate. Banks have been expanding to serve clients in the suburban areas and other places where access to financial services was a nightmare.

Figure 1 presents the trend on the bank capital and liabilities for the sampled banks from the period between 1998-1 and 2010-4:

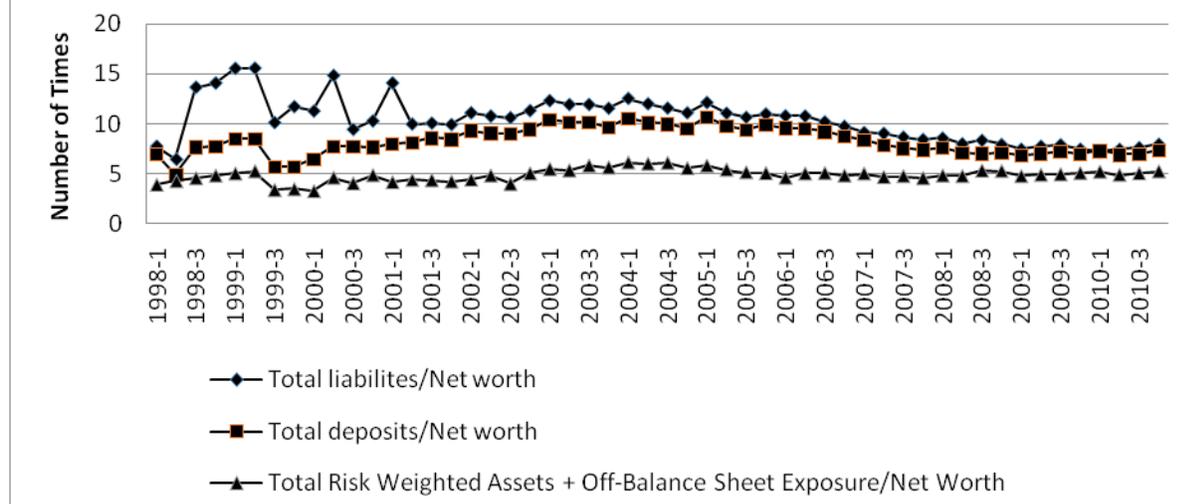


Source: CBs Quarterly Financial Statements

**Figure 1: Bank Capital and Liabilities Trends from 1998-1 to 2010-4 for the Studied Banks**

**Capital Adequacy**

Analysis shows that the sampled banks have had strong capital adequacy measures, although there has been a decrease in values in recent years. Between 2008 and 2010, the world economy was affected by the financial crisis. Although there were not direct effects on the Tanzania banks, during this time, the capital adequacy measures of the banks registered a slight decrease as compared to other previous years. Taking 1998-1 as a base year, risk weighted assets (RWAs) to total capital was 23% a decrease by 15% in 2008-4, 10% in 2009-4 and by 11% in 2010-4. The RWAs to total capital was not below the required balance of 10% as recommended by the BIS during the period of study. Figure 2 presents a trend of various variables to net worth of commercial banks during the period of study.



Source: CBs Quarterly Financial Statements

**Figure 2: Trends on Capital Adequacy Measures from 1998-1 to 2010-4**

**METHODOLOGY**

This study used a positivisim approach and the unit of analysis is the banking firms. It applies a longiturdinal study as the capital structure of commercial banks changes almost on daily basis.

The study took an approach of studying a large representative sample of the banking sector in Tanzania. In this regard, a representative sample of the longest lived commercial banks since the liberalisation of the financial sector 1991 is used. During the period of between 1991 and 1997, several local and foreign banks were established. However, during that period, government-owned banks—CRDB and NBC— were still in operation, but they largely performed inefficiently and were undercapitalised. The two state-run banks remained the largest banks with more

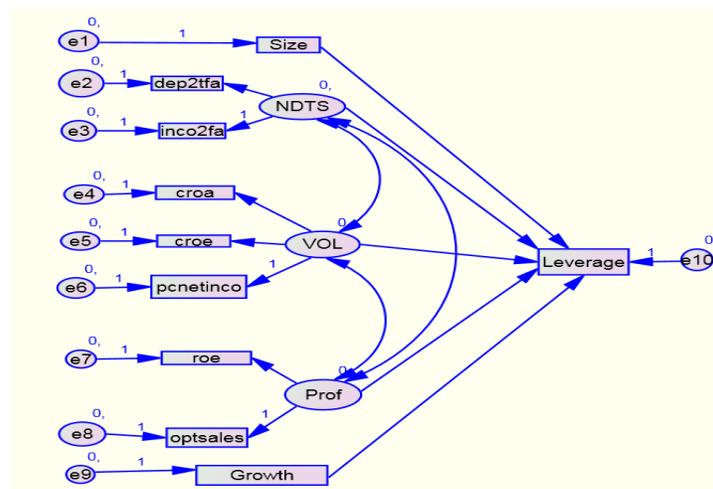
than 70 percent of the total banking assets during the period. Unsatisfactory operations and dominance of the government-owned banks led to their liberalisation. CRBD was privatised in 1996, Currently, the CRDB Bank PLC and the National Bank of Commerce was split to form the NBC (1997) Ltd and the National Microfinance Bank (NMB) Limited in 1997 currently NMB Bank PLC and, thereafter, privatised in 1997.

**Data Type and Source**

This study investigated CBs (firm level) as a unit of analysis. The best way to investigate firms as subjects, on the basis of functional epistemology, is to consider using quantitative methods (Suddaby & Greenwood, 2009). The focus of several banks per sample period chosen demand for utilisation of panel data models. The research utilised financial statements data for banks that were in operation in the first quarter of 1998 (1998-1) to the fourth quarter of 2010 (2010-4) continuously. This category of commercial banks was considered because they formed the largest group composition of CBs in Tanzania for the period under review (Caroll, Feng, Mens, & McKendrick, 2009). The data collected through this approach formed a balanced panel data to be informed (Gujarati, 1999). Gujarati (1999) pointed out that the use of panel data models give room to construct and test more complicated behavioural models than purely cross-section or time-series data. To develop a panel data set for banks in Tanzania from the 1998-1, there was a need to utilise a data set with an objective measure for all the banks, employing same observable variables across time, for the same subjects. In this regard, the only available and most convenient observable variables were to base the data on the financial statements of the banks.

CBs are required to submit financial statements data, which include balance sheet, income statement and a cash flow statements to the BoT, the country’s central bank, on weekly, monthly, quarterly and annual basis. Banks are required to fill in information related to their operations based on a standard format provided by the Bank of Tanzania (BoT, 2009a). Banks are also required to publish their quarterly and annual reports in the national newspapers and display the reports into the banking branch lobby area for bank stakeholders to analyse the bank affairs and inform their decision when dealing with the banks. Moreover, the BoT regulations require the banks to use officially recognised auditors to audit their bank statements (BoT, 2008). Thus, use of CBs financial statements data from the 1998-1 provided an ideal longitudinal panel data for the study.

A multiple-indicators-multiple-causes (MIMIC) structural equation modelling (SEM), pioneered by Jöreskog and Goldberger (1975) and used by Chang *et al.* (2009) and several other studies was used. The MIMIC model is used to determine values of latent variables whereby data input applies a linear regression model to find significance among tested variables. The linear model was applied to test seven determinants of capital structure against bank book value leverage for 52 periods of study. The variables in the model are Growth (GOWTH), Non-debt tax shield (NTDS), Profitability (PROF), Volatility (VOL) and Size of the banking firm (SIZE). Figure 3 presents the path diagram that depicts a simplified MIMIC model in which variables in a rectangular box denote observable variables whereas variables in the oval box are latent variables:



**Figure 3: General Analysis of Moments Structures Model for Determinants of Capital Structure**

The details of the variable used to measure the estimates are presented in Table 1:

**Table 1: Details of the Variables used to test the hypotheses**

Main Issue	Variables
Volatility	Change in ROA (CROA) Change in ROE (CROE) Percentage change in net income (PCNETINCO)
Non Depreciation Tax Shield	Depreciation to Total Fixed Assets (DEPR2TFA)
Profitability	Return on Equity (ROE) Operating Income to Total Revenues (OPTSALES)
Size	Natural log of Book value of assets
Growth	Percentage change in total assets (PCTA)
Capital Structure	Leverage Book Value (Total Liabilities/Total Capital) (LEVERAGE)

## RESULTS AND DISCUSSIONS

Table 2 indicates that variables used to test the hypotheses are significant at 1 percent test level except for covariance for return on equity (CROE) and covariance in the return on total assets (CROA). Also the results indicate that the capital structure of the CBs (LEVERAGE) is also significant with a negative correlation and with largest standard error (0.84) among the variables studies.

**Table 2: Intercepts on the Determinants of Capital Structure General Model Variables**

Variable	Estimate	S.E.	C.R.	P
size	11.469	0.063	183.376	***
growth	0.059	0.004	13.916	***
inco2fa	2.277	0.087	26.202	***
dep2tfa	0.155	0.004	41.156	***
pcnetinco	0.394	0.03	13.114	***
croe	0.007	0.009	0.736	0.462
croa	0.001	0.001	0.833	0.405
optsales	0.732	0.008	90.862	***
roa	0.035	0.001	36.062	***
leverage	-7.796	0.845	-9.229	***
roe	0.27	0.008	31.924	***

Note. \*\*\* Significant at 1% test level

Source: Analysed from the CBs Financial Statements

Table 3 indicates that capital structure of commercial banks (measured by book value of assets— LEVERAGE) is determined by all hypothesised variables. Profitability (PROF), bank size (SIZE) and non-depreciation tax shield (NON\_TAX) were significant at 0.01 test level whereas growth (GROWTH) was statistically significant at 0.5 test level with p values of 0.05. These results suggest that volatility (VOL) of earnings is not a significant determinant of the capital structure decision of banking firms during the period of study, but it is significant at 0.1 significant level with p value = 0.1.

**Table 3: Regression on the Determinants of Capital Structure**

Variable	Estimate	S.E.	C.R.	P
Leverage <--- size	1.353	0.073	18.578	***
Leverage <--- vol	-9.779	5.947	-1.644	0.1
Leverage <--- prof	10.256	1.757	5.837	***
Leverage <--- growth	1.538	0.786	1.958	0.05
Leverage <--- non_tax	-15.539	3.908	-3.976	***

Note. \*\*\* Significant at 1% test level

Source: Analysed from the CBs Financial Statements

**Table 4: Statistical Results for the Determinants of Capital Structure**

Variable	Model 1 <sup>a</sup>	Model 2 <sup>a</sup>
	Hypothesis I	Hypothesis II
Size	1.35 (18.57)***	1.29 (17.74)***
Volatility	-9.78 (-1.64)*	-0.66 (-2.69)**
Profitability	10.26 (5.84)***	12.20 (7.10)***
Growth	1.54 (1.94)*	0.22 (0.21)
Non Tax Depreciation Shield	-15.54 (-3.98)***	-0.15 (-1.94)*
No of Passed Fit Indices	5	5
Number of Observations	639	465

Note. Number in the parenthesis represents Z values. \*\*\* Significant at 1% test level, \*\* Significant at 5% test level and \* Significant at 10% significant level. <sup>a</sup> indicates a modified model.

Source: Analysed from the CBs Financial Statements

Five variables were hypothesised to affect capital structure of commercial banks in Tanzania. The variables are profitability (PROF), bank size (SIZE), growth (GROWTH), volatility of earnings (VOL) and non-tax depreciation shield (NON\_TAX). Results indicate that there are varying results based on tested models, which involved a general model and ownership effect models. With regard to the general model, all hypothesised factors were significant determinants of the capital structure of the CBs in Tanzania. However, the volatility of the earnings and growth of the banks were the least significant variables at significant test level of 10 percent. In order of importance, bank size, profitability, non-tax depreciation shield, growth and volatility were found to be key determinants of capital structure in CBs in Tanzania.

Banks are reported to be highly profitable, with an average 50 percent of their total earnings. Thus, it was expected that profitability will be an important determinant of the capital structure as presented in the results. The results are consistent with the findings by Amidu (2007), Berger *et al.* (1995), Chang *et al.* (2009) and Williams (2004). In this regard, the banking firms seemed consistent with the studies conducted in the developed countries where profitability is the key driver for capital structure decisions of the CBs. The study findings are also inconsistent with findings from Ahmad *et al.* (2008) who studied the capital structure decisions of commercial banks in Asian-based developing countries. However, it was noted that profitability of the banks is not always good to the economy, following the role of the banks in money creation and resource allocation (Paula, 2004). This means that the fall in the banks' profits will affect the capital structure and since banks maintain just a minimum capital required by the regulators, there is a risk of bank failures given that banks report losses.

Growth was also a significant variable at 10 percent test level based on the general model. Other test models for size, ownership and growth were not significant determinants of capital structure decision of CBs. The results are inconsistent with Amidu (2007), Chang *et al.* (2009) and Frank and Goyal (2009). Various factors have affected the growth of banks including the nature of the bank regulatory environment, limited infrastructure, personnel and limited innovation and competition within the banking industry.

Controlling for the ownership of banks, growth (GROWTH) of the banking firms is not significant in determining the capital structure among foreign banks. Other factors were significant at 1 percent, 5 percent and 10 percent test levels. The fact that growth is not an important factor was expected based on the nature of the foreign banks

operations in Tanzania whose level of investment in branches remains very low. For instance, the seventh largest bank in Tanzania, which is of foreign origin, has only one full bank operational branch. These findings imply that foreign banks are not geared towards growth in their business operations to reach more areas in Tanzania. This finding hints at a good policy case as majority of CBs operating in Tanzania are of foreign origin. With regard to profitability, the study results are consistent with Claessens *et al.* (1998) who found that foreign banks are expected to be more profitable than local banks.

## CONCLUSION AND POLICY DIRECTION

Key determinants of capital structure decisions of CBs in Tanzania, in order of importance are bank size (SIZE), profitability (PROF), non-tax depreciation shield (NON\_TAX), growth (GROWTH) and volatility (VOL) are statistically significant at the conventional test levels and consistent with the trade-off and pecking order theories. The study findings support several studies that indicate that the determinants of the capital structure in corporate firms can as well explain the capital structure decisions of commercial banks (Octavia & Brown, 2010; Tamulyte, 2012). Based on the ownership of banks (OWNER), growth (GROWTH) of the CBs in Tanzania is not a statistically significant determinant of capital structure among foreign banks. This indicates that foreign banks do not invest much in the growth of the banking sector in the economy but have recourse to other variables such as profitability. It is evident that the capital of the commercial banks is contributed by capital reserves which are held by the banks. This implies that Tier I capital contribution to the banking sector is lower than Tier II, which is generated from the subordinated debt sources and capital reserves. This is also witnessed by considering the number of branches opened by foreign and local banks in the country. There is thus a need for new capital regulations and strategic provisions for commercial banks, especially by imposing different licensing conditionalities based on the capital for foreign and local banks. In this regard, it is suggested that the central bank, BoT, need to ensure that banks gradually adopt some features of Basel III capital accord, which includes the contribution of paid-up capital based on the risks of the banks. Regulations on capital and especially for foreign and local banks can foster competition and enable more growth and access to financial services.

To build on the findings of this study, a mixed research study can be employed to add more value to the current findings; however, finding good informants in the banking sector poses a huge challenge, particularly in the context of Tanzania. Future studies can also be conducted by examining government-owned banks and community banks. Furthermore, a study can be conducted on the capital structure decisions based on the provisions of Basel III capital requirements should be important for commercial banks.

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