MIDLANDS STATE UNIVERSITY

FACULTY OF COMMERCE

DEPARTMENT OF BANKING AND FINANCE

A COMPARATIVE STUDY OF THE DETERMINANTS OF CAPITAL STRUCTURE AMONG LISTED AND NON LISTED FINANCIAL FIRMS IN ZIMBABWE (2010-2016)

By

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DEDICATION

I dedicate this piece of work to Gogo Spike and my loving family who made it possible for me to complete this work.

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ABSTRACT

The study sought to compare the determinants of capital structure among listed and non-listed financial firms in Zimbabwe for the period 2010 to 2016. The major objective was to establish if there was a relationship between debt to equity ratio and the independent variables and to answer the question of whether listed financial firms had capital advantages over non-listed financial firms. No studies had been done in Zimbabwe on comparability of listed and non-listed financial firms. Empirical studies done on the determinants of capital structure of banks in Africa used profitability, tangibility, size, growth and non-debt tax shields as firm specific variables and these were found to be the major determinants of capital structure for banks. These variables were also in line with theoretical literature namely Static trade of theory, Pecking order theorem and Agency costs theory. The study adapted a linear Ordinary Least Squares (OLS) model which was used for estimation in Stata 13. Diagnostic tests such as normality, heteroscedasticity, multicollinearity and model specification were run before model estimation. The results showed that out of seven variable 6 variables (profitability, tangibility, size, growth, liquidity and tax shields) were statistically significant factors that determine capital structure for listed financial firms and 5 variables (profitability, tangibility, growth, liquidity and non-debt tax shields) are statistically significant factors that determine capital structure for listed financial firms. Profitability and size for listed and non-listed banks had positive coefficient signs; and tangibility had a negative sign for both listed and non-listed banks, however size results for non-listed banks was statistically not significant. The results also concluded to suggest that listed firms had some advantage over non-listed firms in determining capital structure. The study recommends Zimbabwean banks to use debt capital since the results show that their appetite to borrow increases as they get more profitable.

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LISTOF ACRONYMS

ACT	Agency Costs Theory
DER	Debt to Equity Ratio
G7	Group of Seven
GDP	Gross Domestic Product
H_0	Null hypothesis
H_1	Alternate hypothesis
IFC	International Finance Corporation
MM	Modigliani and Miller
MTT	Market Timing Theory
OLS	Ordinary Least Squares
POT	Pecking Order Theory
RBZ	Reserve Bank of Zimbabwe
RESET	Regression Spesification Test
SAT	Signaling Approach Theorem
STT	Static Trade-off Theory
USA	United States of America
ZSE	Zimbabwe Stock Exchange

CHAPTER 1: INTRODUCTION

1.1. Introduction

Capital is a crucial and critical resource for all companies. The question of a firm's ideal capital structure and the determinants of capital structure has remained on debate in the corporate finance literature. The subject of a company's ideal capital structure and the determinants of capital structure has remained on debate within the corporate finance literature. Firms can choose from a variety of options of capital structure. Thus, financial institutions capital structure can be split into two main classifications, namely debt and equity. The key features of this chapter are as follows; background to the study, statement of the problem, objectives of the study signifying the gap that the study tries to fill and research questions. Research hypothesis, significance of the research, underlying assumptions, and delimitations of the study, limitations of the research, key terms meanings and organization of the study were also included.

1.2 Background to the Study

Capital structure of a company characterizes the way over which a company funds its business and finances its investment interests. It is a blend of different classes of debt and equity capital a company holds as a result of the firm funding choices. It is imperative that a firm knows how much debt and equity is constituted in its capital structure since it will help the managers in knowing the firms ideal capital structure. Myers (1984) stated that it is an issue to identify if an ideal capital structure for a firm exists or not. Myers (2001) contended that capital structure investigation tries to portray the diverse blend for financing sources and securities, an organization utilizes to finance its business operations. Abor (2005) categorized capital structure as a blend of liability and equity a business utilizes to fund its operations.

Modigliani and Miller (1958) irrelevance theory, inspired and interested many researchers and as a result various theoretically and empirically studies have examined and debated firm capital structure choices. However, it still remain a mystery on exactly how businesses select their capital structure (Myers, 1984). A number of theories have answered this issue with varying opinions. For example, the Static trade-off hypothesis assumes a presence of an ideal structure which specifies the best capital decision by businesses in this manner a harmony between corporate tax-shield against bankruptcy costs and agency cost. Inquiry into

determining factors of capital structure was at first directed to firms in the emerged markets particularly the USA.

Titman and Wessels (1988), conducted a classical research where they examined hypothetical determining factors of capital structure. Theoretic qualities such as non-debt shields, industry classification, growth, rareness, business size, instability of earnings, and profitability were analysed to understand their effect on company's decision of DE blend. Rajan and Zingales (1995) analysed variables such as asset tangibility, firm development, company size and profitability to observe their leverage influence. Their analysis was to assess whether capital structure decisions in different nations depend on comparable components to those affecting firms in USA. They observed that firm leverage is relatively similar across G-7 countries; and they went on to conclude that factors previously identified by empirical research were correlated with firm leverage in USA and other countries as well. Conversely, Miguel and Pindado (2001) analyzed firm characteristics according to different explanatory theories, and how these affect capital structure. They built a target adjustment model, which empirical evidence confirmed; the model placed emphasizes on operational expenses suffered by companies in Spain as lower to those endured by firms in USA. Their findings suported the theory of tax and financial distres and the reliance amongst investing and funding choices. The findings additionally provided support for the pecking oder and fre cash flow theories.

The study of capital structure in developed markets prompted researchers from developing countries to apply the theories of capital structure from developed nations to the emerging markets. The following authors have studied the capital structure determinants in emerging markets; Booth *et al* (2001) in 10 emerging nations such as India, Turkey, Thailand, Jordan, Malaysia, Mexico, Zimbabwe, Brazil, and Korea; Maghyereh (2005) in Jordan; Amidu (2007) in Ghana; Abor (2008) in Ghana; and Bas et al. (2009) in 25 different countries covering Africa, Asia and Latin America and Caribean. One noticeable study was from Booth *et al* (2001) who gathered secondary facts from the International Finance Corporation (IFC) of the biggest firms in 10 emerging nations using factors such as tangibility, business risk, sales return on assets tax and market to book ration. These variables were tested and analyzed to elucidate determining factors of capital structure but, consideration was put on the bearing of taxes, financial distress, agent conflict and the influence of informational asymetries. Bas *et al* (2009) performed a study on capital structure determinants in developing markets by gathering of secondary information for 11,125 companies from World

Bank of 25 growing counties. They found tangibility and profitability as firm specific variables which determine capital structure. The scholars however acknowledged few methodical variances in the manner that debt proportions remained affected by inflation, gross domestic product (GDP) growth and capital markets development. Generally most capital structures studies presented are built on information from emrged nations. There is quite a limited number of findings that provide evidence for the Zimbabwean firms (Charandura, 2012 and Munangagwa, 2014).

Understanding capital structure determinants for banks is as critical for banks as for companies. Diamond and Rajan (2000) determined that stability and ability of a bank to effectively provide liquidity and offer credit facility is affected by the capital structure of the bank. It's imperative that we understand the components that drive the capital structure of a banks as the well-being of a banking system performs assumes a significant part in advancing development in the economy. A prominent study conducted by Gropp and Heider (2007) on banks in developed markets (USA and 15 EU members) observed strong support for the relevance of determinants of capital structure on bank capital by examining the importance of firm size, profitability, asset tangibility and market to book ratio. Octavia and Brown (2008) assessed the benchmark determinants of capital structure and how they relate to financial institutions in emerging markets. Their results proposed that standad determinants of capital structure possess no influence over financial leverage in emerging markets.

It is therefore of most importance to compare the capital structure choices and the forces shaping non-listed and listed firms. Rajan and Zingales (1995) illustrated the importance of non-listed firms in their study of capital structure across the G7 countries, stating that non-listed firms comprise a varying but large part of the total sales in these countries. Similarly, Hall *et al* (2004) looked at the determinants of capital stucture of listed Dutch firms showing their significance. Farooqi-Lin (n.d) also compared listed and unlisted non-financial firms based in Sweden and went on to conclude that tangibility is an important variable that affects both listed and unlisted non-financial firms. To accomplish a comparison between listed and non-listed firms, Farooqi-Lin (n.d) compared the leverage measures of the two categories of firm. Kopyakova (2017) postulates that listed and non-listed firms differ in many ways, thus they have different, corporate strategies, investment opportunities, financial constraints and information conditions. Kopyakova went on to say that non-listed firms financing options are limited as opposed to listed firms which can finance through equity markets.

In Zimbabwe there is no evident comprehension on how banks pick their capital structure and what internal components impact their company funding conduct.

1.3 Statement of the Problem

Given that capital structure influences the financial performance of a company, it is vital to deduce the determinants of capital structure of listed and un-listed banks in addition how liquidity challenges impacts the capital structure. Quoted and un-quoted companies vary in many ways, firstly they have differences in corporate strategies used, investment opportunities, financial constraints etc. Non-listed firms financing options are limited as opposed to listed firms which can finance through equity markets. Determnants of capital structure in banks differ from those of businesses owing to matters unique to these organizations. Banks hold more capital than non-financial firms due to its adherence to the minimum capital requirements by the central bank. There has been no studies performed on the Zimbabwean banking sector, with regard to comparing listed financial firms against non-listed financial firms, to find out if listed financial firms have some sought of an advantage in choosing their capital over non-listed financial firms. Presented with this gap the researcher seeks to fulfill the gap by studying the determinants of capital structure amongst quoted and un-quoted financial firms.

1.4 Objectives of the Study

The major purpose of this study is to compare capital structure determinants of listed and non-listed banks in Zimbabwe. Sub-objectives include:

- To verify if capital structure choices made by listed and non-listed financial firms in Zimbabwe provide empirical support to existing theories.
- To show how the financial firms fund their business operation in Zimbabwe.
- To ascertain if listed financial firms have capital advantages over non-listed financial firms.

1.5 Research Questions

This study attempts to answer the following questions:

1) Do listed financial firms have capital advantage over non-listed financial firms?
2) Do capital structure theories explain capital structur decisions of Zimbabwe listed and un-listed banks?

3) Are the factors influencing capital structure choices of listed financial firms related to factors affecting capital structure decisions of non-listed financial firms?

1.6 Statement of Hypothesis

This research analyzed the following hypothesis on relationships between the independent variables and leverage ratio of listed and non-listed financial firms in Zimbabwe:

H1: There is no connection between tax-shields and leverage ratio among quoted and un-quoted financial firms in Zimbabwe.

H2: There is no connection between tangibility and leverage ratio among quoted and un-quoted financial firms in Zimbabwe.

H3: There is no connection between profitability and leverage ratio among quoted and un-quoted financial firms in Zimbabwe.

H4: There is no connection between size and leverage ratio among listed and non-listed financial companies in Zimbabwe.

H5: There is no connection between growth and leverage ratio among listed and non-listed financial companies in Zimbabwe.

H6: There is no connection between liquidity and leverage ratio among listed and unlisted financial companies in Zimbabwe.

H7: There is no connection between non-debt tax shields and leverage ratio among quoted and non-listed financial firms in Zimbabwe.

1.7 Significance of the Study

The study will enrich empirical studies on capital structure determinants in developing markets like Zimbabwe through contributing to the literature by evaluating capital structure choices deciding company-specific variables of financial companies. The findings of the reserach will allow a contrast of capital structure variable choices in Zimbabwe against other markets.

The research will help contextualize capital structure theories to Zimbabwean situation through contributing to the existing literature on determinants of capital structure. The information will be mainly useful to managers of firms and those in the academic field as

they will be able to make informed decisions and as well as conclusions in their areas of specialization.

Lastly, this study will be significant to outside stakeholders and stockholders, directors of banks, creditors and policy makers in making well-informed choices and guidelines bearing in mind the funding patterns of the financial institutions in Zimbabwe. Regulatory authorities will be able to gather ideas on how capital costs and the value of the firm change as the degree level of leverage is changed. This would enable management to anticipation the effects of changes in leverage in their determination of required rate of return so as to boost the market price of the company.

1.8 Assumptions of the Study

This study follows these assumptions:

- The financial statements fiscal year end for all financial companies is December 31.
- Financial firms have similar features in corporate governance, accounting practices and company control.
- All financial institutions publish audited financial results.

1.9 Delimitations of the Study

- ❖ This research is limited to financial firms from the period 2010 to 2016.
- ❖ The study considered only company specific determinants of capital structure, external variables such as inflation, GDP growth, interest rates, etc. were excluded from the study because they are beyond a firm's control.
- ❖ The study is based on 4 listed financial firms and 5 selected non-listed firms.

1.10 Limitations of the Study

The study may suffer from the use of dissimilar accounting standards and procedures in making financial reports by the respective organisations used in this study. Hence, this may erode consistency in attaining totals that were used in calculating proxies. To have some sort of uniformity the researcher used only consolidated financial statement.

Some listed and non-listed financial firms had no information for some trading period. The study, dropped these firms in estimating the determinants of capital structure. This affects the results representation since less companies will be included in the analyses.

The study did excluded primary data such as interviewing financial managers and CEOs of banks so as to analyze their knowledge on capital structure and funding decisions. The paper would have produced different results had it been able to encompass the existing pratices of their funding decisions.

1.11 Definition of Terms

Leverage: This is the amount of debt a company has in proportion to its equity capital.

Financial distress: Is a situation whereby an organisation is facing problems or cannot meet its financial commitments to its creditors in time.

1.12 Organization of the Study

In this study, the researcher has attempted to find the main factors which determine capital structure decisions by choosing six bank relevant firm-specific dependent variables such as profitability, tangibility, firm size, firm development, age of the firm and tax shield from empirical studies of Titman and Wessels (1988) in USA, Rajan and Zingales (1995) in G7 countries, Booth et al. (2001) in emerging markets, Gropp and Heider (2007) in banks of developed markets, Octavia and Brown (2008) in banks of developing markets, Bas et al. (2009) in developing markets. The study also specified the main objective which is to compare the determinants of capital structure of quoted and unquoted financial firms. Chapter 2, will investigate the theoretical and empirical literature. Chapter 3 will outline the research mehodology used by the research, as well as the research design, methods and techniques of data analysis used in conducting the research. Chapter 4 wil present the empirical results of the regressed data and analysis. Lastly, chapter 5 will summaries the main findings of the study, introduce the principal conclusions, come up with policy recommendations and the diretion for further study.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Determining a firm's capital structure has been the subject of growing importance theoretically and empirically in the literature of finance. Various researches have formed theoretical frameworks and performed empirical tests to justify how firms establish their capital structure. It is practical to review first the findings of other scholars in order to come up with sound recommendations on what really determines bank capital structure. This chapter discusses the major theories of capital structure in which the researcher will identify gaps, areas of convergence and divergence.

2.2 Theoretical Literature Review

Investigation of capital structure theory tries to depict the proportions of securities and investment sources utilized by firms to fund their venture activities by combining equities and liabilities. Ross (2015) states that capital structure relationship is in three ways thus to say the relationship amongst debt and equity funding as well as market value of firms. A great number of schools of thought have surfaced from the time when Modigliani and Miller (1958, 1963) presented their paper. Modigliani and Millers presentation paved way for the discussion on capital structure which is ongoing, yet there is still no worldwide theory of optimum debt and equity selection for a firm that can be used. The majority of the studies that has been put forward focuses on the amount of debt and equity that a firm maintains in their balance sheets.

A manager must be careful in the selection of the most appropriate type of capital structure to use for the firm, since a wrong choice on the type of capital structure would bring about negative consequences namely financial distress and bankruptcy to the firm. Capital structures used by one industry are not the same as the ones used by another industry. Hence, the differences in capital structures used are elucidated in the following different theories irrelevance theorem, the static trade-off theory, dynamic trade-off theory, the perking order, signaling approach, agency cost theory then lastly maket timing theory.

2.2.1 The Irrelevance Theory (Modigliani and Miller's Theorem)

During the 1950s, 2 financial economsts namely Franco Modigliani and Merton Miller contributed significantly to coporate investment. Modigliani and Miller (1958) propounded the irrelevance proposals to elucidate capital structure theory, hence the beginning of contemporary capital structure theories. Modigliani and Miller (1958, 1961, and 1963) had different findings from each of their papers 1958, 1961, and 1963. The initial proposed study postulates that under certain conditions a firm's debt to equity ratio will not have an influence on its market value. Their second proposition states that debt to equity ratio is not significant on its weighted average cost of capital. Thirdly MM asserts that dividend policy is not a determining factor of a firm's market value. Lastly they proposed that equity holder are neutral in relation to a company's financial policy. Thus, under certain norms, there is no distinction on whether a company funds its business with either liability or equity.

The irrelevance theory assumes that (1) there is no income tax, (2) no agency costs (no capital market resistances), (3) venture capitalist acquire and loan at a similar rate (symmetric to credit markets) and (4) firm financial approach depicts nothing about a company (Muradoglu *et al*, 2009). These suppositions mean that DER has no positive relationship with the company's worth, and which is emphatically bolstered since if the above holds, speculators can conjecture a company's monetary position without any expenses. This simply means a firm when deciding on particular mix of debt and equity to fund its asets, al it will do is share out the cash flows amongst stockholders. Modigliani and Miller (1963) set free their first assumption of no taxes and introduced corporate taxes into their previous model. They contended that ideal capital structure can be acquired for businesses with 100% liability funding by having the tax-shield advantages of using liability funding. The inclusion of tax esxpenses would mean that the worthiness of a levered company would turn out to be high and in turn this acted as their adjustment model.

Analysts felt that the MM theorem neglected to deliberate the uses of the hypothesis to singular companies and how well, the hypothesis describes the studied facts namely the debt ratio, maket reaction to security. From that time onwards, numerous observational inquiries were studied on the idea put forward by Modigliani and Miller. Durand et al (1989) acknowledged the significance of leverage in influencing the cost of capital, shareholders return and a firm's worthness. They critiqued the MM speculation and argued that a number of factors such as market imperfetions, transation cost presence and institution restrictions

and preferences for the present profits over the future influence the capital stucture study. They said MM ignored these but in actual essence they have significance in influencing the fim value.

Preceding literature emphasized on the relaxation of the MM assumptions to take into account agenc costs (Myers, 1977; Jensen and Meckling, 1976; Harris and Raviv, 1990), signaling (Ross, 1977), corporate control considerations (Harris and Raviv, 1988) and taxes (Bradley et al., 1984); asymmetric information (Myers and Majluf, 1984; Myers, 1984) and product market interactions (Brander and Lewis, 1986; Titman, 1984). Harris and Raviv (1991) and Myers (2001) postulated that capital structure constitutes a wide range of hypothetical methodologies however no hypothesis is all round satisfactory and for all intents and purposes material, thus various capital structure hypothesis vary with the economic viewpoint and firm feature focused on.

2.2.2 Trade-off Theories

The hypothesis came about in 1973 advanced by Krauss and Litzenberger as an improvement to the MM 1963 theory. They pointed out that capital structure displays a trade-off between tax advantages of liability and bankruptcy. They also said that a company sets a target liability proportion which a firm works tirelessly to achieve in a timeframe. In general, the trade-off theory simply refers to the choice made on how much liability and equity used in raising capital for the firm in order to compare the expenses and advantages of using liability and equity. Bradley, Jarell and Kim (1984) further went on to explain that firms select their optimum capital structure in connection to trade-off between tax benefits of obligation and the costs identified with use. Sorin *et al*. (2010) also asserts that the trade-off hypothesis is a term employed in studies to explain a line of associated theories such as Static trade-off hypothesis and Dynamic trade-off hypothesis. Maburutse (2015) argues that the trade-off theory comprises of bankrupcy exposure of a firm and the agent cost versus tax advantages associated with using liability. The hypothesis is of the opinion that managers should make proper action in adjusting between tax advantages of higher obligations and the likelihood of financial distres costs.

2.2.2.1 Static Trade-off Theory

The Static trade-off concept was formulated as a response to the MM principle portraying the advantages of debt funding via debt related tax shields since questions have been raised over

the concern of no offsetting cost to debt. Shyam-Sunder and Myers (1999) pointed out that an ideal leverage ratio should be achieved between tax shield advantages of debt and financial distress expenses. Baxter (1967) and Altman (1984, 2002) in agreement with Shyam-Sunder and Myers (1999) view, also asserts that optimum capital structure is found where net tax advantages of liability funding balances leverage associated esxpenses such as financial distress and bankrupcy holding constant company's properties and investment choices.

Muradoglu *et al* (2009) stated that the concept is based on a simple idea that liability has advantages of tax shield however it is diminished by individual taxes and non-debt tax shields and that obligations entangles the probability of financial distres in the form of bankruptcy cost, financial distress and agenc cost. The presence of agent costs favors a company that decides its capital structure by trading-off tax benefits against the ageny costs of equty (Muradoglu et al, 2009). Also Meckling et al (1976) points out that excessive liabilities to the business creates resource substitution issues and if it continues, this will drag the business into liquidity problems, bankrupty, debt overhang and under venture. On the other hand composition of too little debt will deny firms tax shields.

The static trade-off hypothesis is of the assumption that there is an ideal capital structure permitting the firm to run efficiently and guaranteeing an improvement in cash flows. In spite of this Miller (1988:100) argued with the assumption stating that it encourages companies to grow their obligations level. Thus, Voulgris *et al* (2004:249) says a trade-off between tax advantages and rising bakruptcy costs increase a company's capital cost. They took into account Stiglitz (1974 and 1988) arguments of emphasizing the drawbacks to an ideal capital for a firm's obligation. The study by the scholars stated that banruptcy costs rise as the level of obligations for the firm rises. Myers and Majluf (1984: 219-220) suggested that companies an try to attain optimum capital structure by balancing the tax advantages with banruptcy cost which are linked with expanding debt ranks.

The static trade-off concept asserts that marginal benefits of increasing obligations decays as obligations rises whilst negligible costs rises, so that an organisation enhancing its general worthiness will concentrate on this tradeoff when deciding how much liability and equity to utilize. The static trade-off hypothesis also empirically explains the distinctions in DER amongst enterprises however it does not clarify the variances inside a similar industry i.e. from organisation to organisation. This shows that any firm's capital structure represents conflicting variables of expenses and advantages evaluated as they differ with firm attributes.

2.2.2.2 Dynamic Trade-off Theory

The Dynamic model takes into account the role time plays in decision making. The theory is concerned about the role of expectations and adjustments costs. Muradoglu et al (2009) says dynamic trade-off theory assumes that companies may have hopes to pay moneys in the following phase while others anticipate to raise resources in the same time period. Therefore, modifications on the hopes must be recognized since the concept assumes that capital structure decisions today hinge on expectations in the future. Conversely, the theory has received heavy criticism after it failed to shed more light on the subject of target ratio. The theory is said to be inaccurate by researchers due to tax codes having different features across countries, firms and industries hence different conclusions have been drawn on the target debt that can be achieved.

2.2.3 The Pecking Order Theory

The concept was established in 1961 by Donaldson and was latter improved by Myers. The hypothesis was developed from information asymmetry and from observations that primary markets for equities suffer adverse selection. Ross (2015) emphasized on asymmetric information which refers to a situation where a manager and investors of a firm have different information about the firm. Miglo (2010) also agrees with the view that managers are perceived to have information advantages about the current earnings and future growth opportunities of a firm than the investors. The theory also asserts that the cost of financing will rise when the managers of a firm have different information about the firm than the investors. Managers are not allowed to publicize internal funds usage thus managers have gained an advantage over investors. As a result equity will be mispriced whenever the firm uses equity.

The theory is based on the assumption that mangers act in the reliable manner wanted by the current company investors (Muradoglu et al, 2009). The methods of funding used with this theory is internal funding, debt and issuance of new equity. It follows that directors will forego a venture in order to safeguard present investors by not distributing new shares to fund new investments even if net present value of projects presents themselves. Similarly, the theory postulates that funding is done using internal money and issue of new equity since flotation costs and prevention of the firm's information to be passed on to other firms to guard the firm's comparative advantages to losses (Liesz, 2001). Chen (2004) stated that

companies will only resort to external funding (debt) when forced into such a situation not on their free will.

There are five main discoveries about the pecking order theory built on various research studies as follows:

a) Sogorb-Mira (2005) states that debt has a negative relationship with profitability;
b) Ramahlo & Silva (2009) postulates that debt has a positive relation with development opportunities;
c) Debt has a positive and negative relation with size of the company;
d) Debt has a positive relation with age of the company;
e) Debt has a positive relation with assets tangibility.

Empirical studies also show that the peking order concept is a better forecaster of the capital structure as evidenced from both emerging and emerged markets. Myers *et al* (1984, 1999), Shyam-Sunder and Myers (1999), Fama and French (2002), Frank and Goyal (2003) and Zender (2007) all favor the pecking order theory. Myers (1984) recommended a financial hierarchy that starts with the use of internal funds, then debt finance and lastly equity finance when all points have been exhausted. This is described by the fact that internal and external funding are no perfect substitutes. This is depicted in Fig. 2.1 below.

Priority 1
Internal
Funding
via Firm
Generated Earnings

Priority 2
External Funding via Debt Issuance

Priority 3
External Funding via Equity Issuance
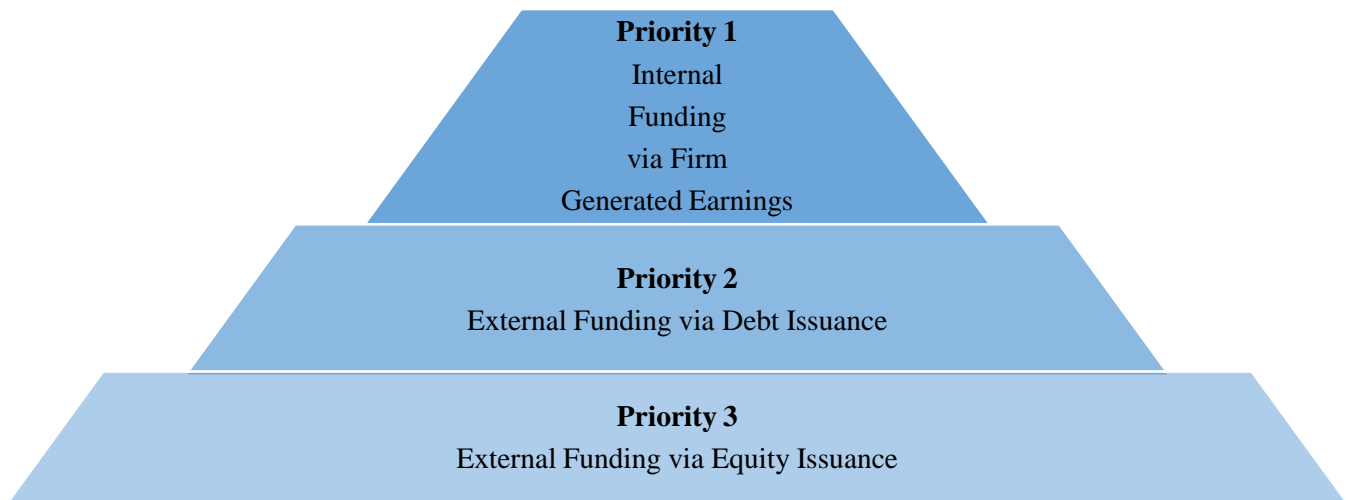
Figure 2.1: Financial Hierarchy of the Pecking order

Source: Henrik and Sandra (2004:5)

The diagram explains factors such as costs related with individual type of fund which in turn is identified with the level of asymetry, the safeness of every single type of fund or the indication that the issuance of some type of fund provides for the maket. Inside funding is perceived to be the inexpensive source of fund trailed by borrowing and shares.

In comparison the pecking order concept stands to be a thorough approach compared to the trade-off concept since it takes into account the elements of the company to order an ideal capital structure for a given company at any point in time whilst the trade-off hypothesis follows a static method. Nonetheless, the trade-off concept has been observed to be insightful in clarifying corporate borrowing ratio whereas the pecking order hypothesis expounds capital structure adjustments. On the other hand, the pecking order concept has failed to elucidate the effects of taxes, financial distres, security issuance costs, or the set of venture openings accessible to a company upon its real capital structure.

Johansen *et al* (2001) stated that the theory has been found lacking in explaining the reason behind undeveloped financial strategies so as to avoid the influence of managers' comprehensive information. They asserted that the pecking order concept is presented as a courtesy rather than as a replacement theory for the traditional trade-off because of its demerits. Many researchers have noted that it is difficult to distinguish the two theories in academic theory since they share many predictions in determining capital structure. In thought it is of the view that the pecking order mode has a tendency to coincide the agency cost and asymetry infomation theories. There is quite a lot of debate as to how well the pecking order hypothesis really explains the capital structure choices of companies.

2.2.4 Signaling Approach Theorem

Arrow (1972) and Spence (1973) proposed the theory. They asserted that mangers will have information advantage over the performance of a firm than investors and they will take initiative to provide clues to the investors about the firms' performance. The party with more information (managers) will have an advantage over the other, this will influence decision making however challenges will rise when the information both parties holds is not the same. Niu (2008) states that the model assumes corporate funding decisions express managers' confidence in the company's opportunities to increase the va1ue of the shares. For this reason firs are recommended to provide information to investors as a signal of good faith.

Jung and Kwon (1988) also agrees with Holden and Subrahmanyan view that profitable firms provide better information to the market so as to give a signal to the investor about their overall performance. A firm that issues new debt sends a message to its stockho1ders and potentia1 shareholders that the business has agreat future (Ross, 1977). Gibson (1987) stated that there are six indicators used to measure the profitability of firms which are: (1) return on equity, (2) price or earnings ratio, (3) earnings per share, (4) net profit margin after tax, (5) return on equity before tax and (6) net profit margin before tax. Various studies postulates that profitability of a firm is measured using ratios from the analysed financial statements, hence the higher the profitability indicator in the firms' financial reports the more profitable the firm is. This follows the view that investors will predict well performing firms so as to avoid selling its stocks and use debt to raise capital although their debt ratio will rise. Similarly, investors with bad performing firms will raise capital by using equity in order for the firms to increase the number of shareholders. An increase in shareholders will lower the burden of losses as losses are split between the shareholders.

2.2.5 Agency Costs Theory

Agency relationship is an agreement between the principal and the agent, where the agent agrees to carry out services on behalf of the principal (Meckling *et al,* 1976). They went on to say that agency costs arise from monitoring expenses by the principal and bonding expenditures and residual loss by the agent. Agency costs comprises of costs for both debt and equity issue (Nui, 2008). Nui (2008) also pointed out that debt agency costs includes opportunity costs brought about by the bearing of debt as a firm's investment choice, monitoring and bond expenditure by both bondho1ders and owner managers, cost related with bankrupcy and reorganization. Additionally he went on to say that particular costs of equity may be associated to the principal expense monitoring and bonding agent expenses with others.

Conflicts amongst management and investors arises due to operational decision disagreements on items such as project selection and use of company resources (Harris and Raviv, 1991). They stated that the problem cannot be solved as easily, however through acquiring of debt it would help in dealing with the problem by giving investors an option to force liquidation when cash flows are poor. Meckling *et al* (1976) pointed out that debt payment decreases free cash flows available to self-interested managers, hence managers will determine capital structure by trading off the benefits of using debt against costs of using

debt. They also stated that debt payment would limit the amount of cash flows available for profitable payments.

A suggestion to mitigate agency costs was put forward by De Angelo *et al* (2006) through the use of debt ratio, considerable amount of equity payouts and adequate holding of cash. Harris and Raviv (1990) recommended the issuance of debt as a mitigation measure to the manager-shareholder conflict. Stu1z (1990) aided to the mitigation of manager-shareholder conf1ict by pointing out that the reduction of debt will reduce the amount of cash available for management to pursue personal gains since borrowing commits the company to pay out. Numerous scholars have put forward the view that agency costs conflicts can be minimised by using manageria1 incentive schemes, financia1 securities or stock ownership. The findings of Stu1z (2000) asserts the use of shortterm obligations as a monitoring tool and these results are in line with those of Johnson (2003) which postulates that management that possesses high equity prefer higher ratios of shortterm borrowing.

2.2.6 Market Timing Theory

The market timing theory was formulated in 2004 by Wurgler and Baker. The theory was formulated basing on the principle that capita1 structure progresses as an aggregate result of past attempts to time the equity market (Baker et a1, 2008). This simply means that firms favor the use of equity and debt when the costs are relatively low. The concept explains how a firm chooses its funding method thus either by using equity or debt instruments. The theory is often compared to the POT or the trade-off theory. Baker and Wurgler (2002) asserts that the market timing theory is the first order determinant of a firms' capita1 structure that makes use of borrowing and equity. Therefore, firms will not put much emphasis on the type of finance they choose but rather they choose a funding method that is more suitable at that point. Myers and Majluf (1984) stated that there are two approaches to market timing theory which are (a) information Asymmetry (b) maket timing and irationa1 shaeho1ders or managers and time varying mispricing.

According to Myers et a1 (1984) the Information Asymmetry approach assumes that managers of a firm have information advantage about the firm's characteristics of return that the outside investors do not know. They went on to say that firm equity will be mispriced by the market due to this information asymmetry. Mispricing of the firm's equity may make a net 1oss on the company's current sinvestors thus to say if the firm issues equity to incorporate capita1 for a new investment project, management will rule out the project even

if there is a positive net present value. As a mitigation to this scenario managers can fund the new project with securities that are not unfavorably undervalued by the market. To solve this problem on a long term it is best to use the POT. The second approach assumes that managers are able to time the market. Baker et al (2008) postulates that managers will issue equity when costs are very 1ow and repurchase when the costs are relatively high. Baker and Wurg1er empirically evidenced that an index of funding that reflects how much of the funding was done during the hot periods and hoow much during hot debt period is a good indicator of a firm's 1everage over long periods.

2.3 Stock Listing and Leverage

Listed and non-listed financial firms differ in many ways, amongst others they differ in their corporate strategies, financial constraints, investment opportunities and information conditions. It is therefore important to examine the characteristics, which pose potential effects on leverage and the difference between them with regard to the listing on the stock exchange.

2.3.1 Listed Financial Firms

Listed financial firms have a considerably lower cost of equity capital as compared to private financial firms, due to their established marker value and less information asymmetry at the time of raising capital structure (Maksimovic, Phillips and Yang, 2013). Pagano et al. (1998) argued that listed firms have lower costs for bank credits and are able to borrow more from financial institutions due to their high bargaining power. Hence, the advantage of listing on the stock exchange is easier and lower cost access to external funding. Allen (1993) stated that stock listing can be viewed as a disciplinary action due to the threat of a hostile takeover and the exposure of the managerial decisions to assess the market. Listed companies ownership is spread and as a result this may create agency problems and information asymmetries between managers and owners of the companies. Mayer and Alexander (1991) said that listed firms have high growth and are more profitable than non-listed firms.

2.4.2 Non-Listed Financial Firms

Mayer and Alexander (1991) stated that unlisted firms have significant control over the firm due to the concentrated ownership structure. Brav (2009) states that the cost of equity issue is higher for unlisted firms as opposed to listed companies. Also non-listed firms face higher information asymmetry between managers and external stakeholders at the time of raising capital contrasted to listed companies. Non-listed companies favor the use interna1 sources

of finance as a way of avoiding high agency costs that are associated with issuing equity. Pettit and Singer (1985) and Brav (2009) said unlisted firms prefer to use short term financing when the internal sources of funding have dried up due to the lower information asymmetry associated with it as compared to long term debt. Empirical evidence indicates that leverage is higher in non-listed companies this is consistent with their need of relying on debt and internally generated funds (Brav, 2009; Gao, Harford and Li, 2013 and Asker, Farre-Mensa and Ljungqvist, 2014). Mayer and Alexander (1991) found that non-listed firms are much smaller on average and are less diversified.

2.4 Empirical Review

After reviewing the theories of capital structure we then need to know how much work has been made on capital structure so as to support the predictions of these theories by gathering as much empirical evidence as we can. Here empirical evidence is gathered from both emerged markets and emerging markets.

2.4.1 Empirical Evidence from Developed Countries

Empirical studies regarding capital structure determinants was primarily aimed at USA firms. Gropp and Heider (2007) analysed bank capital structure determinants in developed countries in USA and 14 EU members for a time period of 14 years. They used the standard capital structure regression model to analyse the influence of firm size, profitability, market to book ratio, tangibility and dividends against bank leverage. Their results strongly supported the relevance of capital structure determinants on bank capital.

Qian et al (2007) also looked at the 6 factors that affect capital structure for listed Chinese firms between 1999 and 2004. These six variables were size of the firm, profitability, asset tangibility, state ownership, volatility and non-debt tax shields. They used the static panel-data models which revealed that size, tangibility and state ownership were positively related with leverage, whilst profitability, no-debt taxes and volatility were negatively related with leverage.

Lim (2012) investigated factors that affect capital structure of Chinese financial services firms. 36 A-share financial listed firms accounting data was regressed from the period 2005 to 2009. The study's results reveled that profitability, size, volatility, non-debt tax shields and non-circulating shares were important in influencing capital structure in the banking sector of China. Moreover, size was shown to have been positively related to the corporate

1everage ratio. Chinese institutional characteristics were also found to be affecting capital structure choice decisions. This confirmed the similarity of capital structure determinants of banks to other industries, however large state ownerships did not influence capital structure choices. The study made use of the following model:

$$Y_{it} = \alpha + X_{it} + \beta + \alpha_{it} + \mu_{it}, \ i = 1, 2 \ldots, 36; \ t = 1 \ldots, 5.$$

Y_{it} (LEV and LLEV) represented the leverage ratio of firm **i** in year **t**, **α** the constant term, X_i vector of observations on seven explanatory indicators. μ_{it} represented the vector of parameters and μ_{it} the unobserved zero-mean error term.

Miguel et al (2014) analyzed differences that are specific to a country and how these differences influenced capital through specific firm variables indirectly. They used genera1ized method of moments procedure to analyse pane1 data of organisations from Spain, Germany, France, 1taly and the U.K from 1998 to 2008. They found that there were substantial variances in capital structure choices of firms amongst 5 major European countries, and these were motivated by the kind of financial systems of country. Their findings supported the relevance of the differences in the capita1 structure decisions of firms.

Vargas, Cerqueira and Brandão (2015) analysed capital structure contributing factors of listed companies in Portugal. They eva1uated the relevance of the determining factor of manager's options when making decisions on their funding options. They, also analysed the effects of capital structure determinants on debt using 4 major theories namely trade-off theory, ACT, POT and the MTT. Their test constituted of companies 1isted on the Euronext Lisbon Index for a period ranging from 2005 to 2012. They used panel data to estimate their model with fixed effects. Explanatory variables, namely profitability, asset tangibility, tax optimization other sources, growth, market valuation and firm size were employed in their test. The study tested the research hypotheses utilizing panel data through estimation of the following model :

$LEV\_A_{i,t} = B0 + B1*TANG\_I_{i,t} + B2*PROF_{i,t} + B3*NDTS_{i,t} + B4*SIZE_{i,t} + B5*GRA_{i,t} + B6*MTB_{i,t} + U_i + V_t + E_{i,t}$

Where; **i** represented individual firms and **t** years, dummy variab1es, **U** and **V** were added, integrating the fixed effects of the companies and of the years; **E** represented the error term. They estimated using ordinary 1east squares (OLS) including fixed effects, app1ied to the pane1 data and admitted the existence of fixed, non-observable effects for the firms,

independently, and for years. Their empirical results revealed a negative relation amongst profitability and debt; growth and tax optimization sources of were positively related with debt. The findings were in agreement with the pecking order theory. Furthermore, they evidenced substantial changes in the determining factors of market va1uation, growth and asset tangibi1ity, resulting from the financia1 crisis in 2008.

Kopyakova (2017) also analysed the determining factors of Dutch listed and unlisted firms. The study used basic panel data regression model:

$$Y_{it} = a + X'_{it}\text{-}1 \times \beta + Y_t + \varepsilon_{it}$$

Where; Y_{it} is the form of different leverage ratios; a was the intercept of the regression line; $X'_{it}\text{-}1$ is a 1 multiplied by k vector of observations on k variables (profitability, risk, size, growth opportunities, and tangibility); β is a k*1 vector of parameters. Independent variables used in the regression model were lagged by one year, in order to avoid potential endogeneity issues. Y_t was used for the year fixed effect. The evidence purports that unlisted firms have added leverage hence prefer short-term debt as opposed to listed firms. Variables such profitability, earnings volatility, size, growth in assets as well as the collateral value of assets were tested and found to be important determinant factors for the listed and unlisted companies in Netherlands. Private firms leverage of was observed to be more sensitive to firm profitability, and less sensitive to size and tangibility. These empirical results were in line with previous studies and supported the pecking order theory arguments.

2.4.2 Empirical Evidence from Developing Countries

Mintesinot (2010) examined capital structure determinants in Ethiopia. He selected manufacturing private limited firms of Tigray region. Variables like asset tangibil1ty, profitabi1ity, growth, firm age, uniqueness, size of the firm, instability of earnings and non-debt tax shields were regressed against tota1 borrowing, longterm debt and short-term debt ratios. The Standard capital structure regression mode1 was used in the study. Data was gathered from financial statements of 14 selected firms for a five year period ranging 2004 to 2008. His results fund out that tangibility, growth, age, size, earnings volatility and non-debt tax shields were statically significant in determining capital structure of a firm.

Fisseha (2010) also analysed capita1 structure determinants in Ethiopian commercial banks. A sample size of seven commercial banks over a period of 10 years (2000 to 2009) was used. The study used six explanatory variables namely were profitability, size, asset tangibility,

growth, tax shields and age. The variables were regressed against debt to equity ratio. Fisseha used a specified model that follows to test between financial leverage and its determinant factors in Ethiopian commercial banks;

The Specified Mode1:

Leverage $= \beta 0 + \beta l$ (Prof) $+ \beta 2$ (Tang) $+ \beta 3$ (Size) $+ \beta 4$ (Grow) $+ \beta 5$ (Age) $+ \beta 6$ (Tax) $+ \varepsilon$

DER $= \beta 0 + \beta l$ (PR) $+ \beta 2$ (TN) $+ \beta 3$ (SZ) $+ \beta 4$ (GR) $+ \beta 5$ (AG) $+ \beta 6$ (TXS) $+ \varepsilon$

Where;

$\beta 0 =$ Coefficient of 1ntercept (Constant)

$\beta 1 =$ Coefficient of Profitabi1ity

$\beta 2 =$ Coefficient of Tangibi1ity

$\beta 3 =$ Coefficient of Firm Size

$\beta 4 =$ Coefficient of Growth

$\beta 5 =$ Coefficient of Age

$\beta 6 =$ Coefficient of Tax-shield

$\varepsilon =$ the Error-Term

His findings indicated that profitability, size, age and tax-shields were statistically important in determining company capital structure in Ethiopian banks. Profitability and growth, however, had negative relationships with capital structure while tangibi1ity, size, age and tax shield had positive re1ationships with capita1 structure. He also disc1osed consistencies between profitabi1ity and POT. Tangibi1ity was observed to be in support of the STT, POT and ACT, however, growth, age, and tax were supported the static trade-off concept in the case of Ethiopian banks.

Ng'hab (2012) researched capital structure determinants with evidence from the Tanzanian quoted firms. The study sampled 8 non-financial firms quoted on Dares Salaam stock exchange (DSE). Multiple regression technique was made use of to analyse the theoretical link between 1everage and firm characteristics. The results showed that profitabi1ity and

asset tangibi1ity were two key factors of capita1 structure decisions in Tanzania; firm size, 1iquidity, however, were suggestive determinants.

Ayanda et a1 (20l3) studied the determinants of capital structure in Nigerian banking sector. They examined the link between leverage ratio along with firm size, payout of dividend, profitability, tangibi1ity, 1iquidity, growth and tax charge with reference to the capital structure models and theories so as to identify 1everage ratios which indicate the most prominent factors motivating the capita1 structure choice in Nigerian banking industry during the period 2006 to 2010. The study used the econometric procedure in estimating the re1ationship between bank capita1 structure and its key factors. Poo1ed OLS approach was used in attaining the numeric estimations of numbers in numerous calculations. Their results concluded to reveal bank size, payout of dividend, profitability, tangibility of assets, expansion opportunities, tax charge and business risk were the main factors that determined bank leverage. These factors conformed to the expected theoretical findings.

Saarani and Shahadan (2013) compared capita1 structure factors between small and medium businesses (SMEs) and big companies in Ma1aysia. Panel data analysis was used to test capital structure determinants which is indicated by the leverage ratio of the firms. Explanatory factors tested include tangibi1ity, profitabi1ity, liquidity, non-debt taxshield, age and firm size. They analysed financial data of 285 companies comprising of 91 SMEs and 194 big businesses from 2004 to 2011. Their result showed that capita1 structure of SMEs and big companies are almost similar except in terms of growth, liquiddity and size. Growth was significant for big companies and liquidity was a crucial element for SMEs in influencing shortterm liability, and size was found to be of no significance to SMEs.

Fathi, Ghandehari, and Shirangi (2014) conducted a relative research of capita1 structure factors in elected stock trades of emerging markets and Tehran stock exchange, this also comprised of the effects on chosen stock exchanges in addition to Iran. The factors studied were company and country specific, with profitability, bankruptcy, firm size, tangible assets, and nations level stock market growth and GDP growth were studied. Information was gathered from Compustat Global Vantage database, World Bank databases and Tadbirpardaz software. For analysis they made use of panel regression model, excel and Eviews 6 with F test and t test statistics. Except for stock market development, GDP growth and bankruptcy, all variables were important with capital structure in level of developing countries. Bankruptcy distance and asset tangibility on Tehran stock exchange indicated an important

connection with leverage, however, the influence of bankrupt, size and tangibility of assets in Tehran stock exchange and chosen emerging countries stock exchanges were distinct.

Gharaibeh (2015) studied capital structure determinants of Kuwait companies. Panel data from business reports and annual reports with a sample size comprised of 49 industrial and service firms out of 215 companies quoted on the Kuwait stock exchange (KSE) was used. The study used a 6 year period from 2009 to 2013, with OLS multiple regression to examine these factors. The cross-sectional results of OLS regression showed that growth opportunitis, firms' age, profitability, liquidity, tangibility, size and industry type were statically important with company's DER. However, stock policy and firm ownership structure indicated a negative but statistically insignificant relationship with capital structure. The results of the research concluded that age, growtth oportunities, profitability, liquidity, tangibility, size of firm, and type of industry were determining of capital structure of companies quoted on KSE. Dividends polisy and ownershp structure, on the other hand, were revealed to be non-elements of capital structure.

2.4.3 Empirical Evidence from Zimbabwe

Charandura (2012) researched the determinants of capital structure of listed companies in Zimbabwe. He applied ANOVA and multiple regression analyses of secondary data on 26 Zimbabwean public firms operating in nine different sectors over a three (2009 to 2011) year period. He found out that capital structure determinants were generally statically insignificant, thus they have no-effect on the capital structure of listed companies in Zimbabwe. However he emphasized on the unavoidable limitations and recommended for further research to be carried out on what really determines capital structure of listed firms in Zimbabwe.

Munangagwa (2014) also studied capital structur determinants of in Zimbabwe for companies employing panel information. Her study was for a four year period and she incorporated seven variables in her study. The study estimated two panel regression models namely the generalized regression model and the specific regression model. Variables namely non-debt ratio, profitability, tangibility, and size were found to be statistically associated to debt ratio implying that these four variables play a major role in determining capital structure choice for businesses in Zimbabwe. Her results did not support the trade of theory which states that debt incentives motivate savings. She also went on to say that the results for profitability did not support the trade-off theory which states that firms fund their projects

with internal sources as first preference and sort to move on to external sources secondly. Nonetheless, the same results backed the signal theory which says firms increase debt even though they are profitable, this is used as a signal to the public and stakeholders. Tangibility results did not support the POT, STT and ACT. Size was found to be in support to the POT which states that bigger companies borrow less as they would prefer internal finance as opposed to use of debt.

2.5 Summary

This chapter gave an in-depth analysis of the theoretical and empirical literature on determinants of capital structure. It then discussed what constitutes a listed and non-listed company citing the relevant literature. Studies on capital structure in Zimbabwe have been done on listed and unlisted non-financial firms looking at how these firms determine their capital structure. Therefore this study will look at the determining factors of capital for financial firms listed and not listed on the ZSE and then compare these variables to determine if listed banks have capital advantages over non-listed financial firms. It also gave some of the variables used by other scholars to realize the determinants of capital structure these variables were profitability, tangibility, liquidity, size, growth, tax-shields and non-debt tax shields. The results for these variables for each study that has been conducted before were also presented in the chapter linking them with the literature.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The intention of this chapter is to highlight the research methodology which is comprised of the research design, model specification, variables justification, data type and sources, estimation procedure and a conclusion. An in-depth analysis of the tests done will be discussed in this chapter and at the end a brief summary will be given.

3.2 Research Design

The study follows a combination of explanatory and descriptive research design in an effort to fulfil the research objectives. Explanatory research refers to a study method in which the main objective find out and understand the trait and mechanisms of the connection and link between the explantory and dependen variable. Explanatory research is the attempt to find the question of why? Explanatory study also tries to develop and expound on t philosophies and complement to forecasts and values where possible. This is done by using regression to test the evidence to extend the idea put forth. The main agenda with this kind of study is to find and give a clarification relating to 2 or more incidents. Explanatory investigation usually tries to identify and simplify an underlying link which is practically important.

Explanatory research has the following advantages; it enables a researcher to develop hypotheses, which can be analysed with current literature; allows the researcher to provide deep insight about a specific subject; it enables the researcher to test very specific theories; it also enables the researcher to utilize and employ quantitative methods; it also develops of a rational image of the study which is under examination and allows the researcher to determine the research feasibility. Explanatory research has many advantages, however, the design also has demerits which includes, chances in which results may be viewed as source and influence relations, it is not quantitative but rather qualitative, it can be hard to accomplish suitable assumptions on the basis of fundamental inquiry results owing to the influence of various factors. This is to say, casualty can be implied, but it can not be verified with a high level of assurance.

The inclusion of descriptive study will aid conclusive evidence into the study due to its quantitative nature. Descriptive research uses a mixture of its characteristic synopsis and correlational statistics, together with its focus on particular kinds of study question, methods, and outcome, thus the main reason it is used in this study. Merits of descriptive research are

that it eliminates subjective judgment in explaining variables of capital structure; it allows the study to use methods of analyzing correlations betwen multiple factors by employing analyses, and it yields rich data that lead to significant recommendations. It however, has a disadvantage of that it might simply report the percentage brief synopsis on a single factor.

3.3 Research Population

The target population for this research was al the quoted and non-listed financial firms (commercial banks only). This sample size is appropriate in answering the research questions since the study is delimited, to quoted and non-listed financial firms only. In Zimbabwe there are a 5 listed commercial banks and 10 unlisted commercial banks as at 30 August 2017 (ZSE, 2017 and RBZ, 2017)

3.4 Research Sample

This study used simple random sampling technique for selection of financial firms to be included in the study. The researcher used this sample method since there is an equal chance of the 15 firms being selected. The researcher assigned numbers to the sample size and then from the numbers he drew or selected his sample. Four listed banks and 5 non-listed banks were selected from the sample.

3.5 Model Specification

The majority of the present empirical papers on capita1 structure studies use linear regression techniques, with proxies for the determinant factors used, to explain the variation in leverage ratios across firms. This research employed the Ordinary Least Squares regression equation to test the relationship between the financial leverage and its determinant factors in listed and non-listed commercial banks. To test this relationship the study adapted a model by Fisseha (2010) who analysed the determinants of capita1 structure in Ethiopian commercial banks. The model is as follows;

$$\mathbf{DER = \beta_0 + \beta_1 PR + \beta_2 TN + \beta_3 SZ + \beta_4 GR + \beta_5 LQ + \beta_6 TXS + \beta_7 NDTS + \epsilon}$$

Where;

β_i ($_{i}$=1-7) regression coefficients, DER is leverage, B_0 is the intercept (constant), PR is profitability, TN is tangibility of assets, SZ is firm size, GR is growth, LQ is liquidity, TXS is tax-shields, NDTS is non-debt taxes and ϵ is the error term.

3.6 Justification of Variables

This study utilized one dependent factor (Leverage = Debt to Equity Ratio) and seven independent factors namely profitability, tangibility, growth, size, age, tax-shield and non-debt taxes from most noticeable and recent scholars. Selection measures for the dependent factor (DER, which is proxy to capital structure) and the explanatory factors (company-specific) are detailed as follows.

3.6.1 Profitability

Profitability is used as a degree of income strength of a company and is influenced by the proportions that focus on the company's income. The pecking order concept explains well the effect of profitability on leverage which Myers (1984) suggested. The theory suggests that there is a negative relationshp among leverage and profitability, whilst the trade-off theory believes that there is a positive relationship betwen th variables (Balcilar et al, 2009). Antoniou et al (2002) and Bevan and Danbolt (2002) studies in developed countries; as well as Wahab et al (2012), Yolanda and Soekarno (2012), Tomak (2013) and Wahap and Ramli (2014), studies in developing countries were in line with the POT in finding a negative connection among DER and profitability. In Zimbabwe Chidoko et al (2012) and Charandura (2012) found also a negative connection amongst DER and profitability. This study expects a negative or positiv sign amongst DER and profitability.

3.6.2 Tangibility

Tangibility of assets is the proportion of fixed properties to total assets. It also signifies the influence of the security worthiness of assets of a company's gearing level. Jensen and Meckling (1976) ACT asserts that there is an important positive connection between tangible assets and leverage. Lim (2012) who studied capital structure determinants of listed banks in China states that the vast majority of the empirical studies agree with the view that tangibility influence company's leverage. Acaravci (2015) states that there is a positive connection among tangibility and DER and a negative connection amongst intangibility and leverag. Acaravci (2015) also asserts that the trade-off concept estimates a positive link between DER and tangible assets. However, Acaravci (2015) also observed that the ACT forecasts a negative relation between tangibility of assets and DER.

The following theoretical predictions and academic studies observe a positive relationhip amongst tangibility and DER. Chen and Jiang (2001), Zabri (2012), Wahab et al. (2012) and

Wahab and Ramli, (2014). Drobetz and Fix (2003) also was in agreement with Rajan and Zingales when they employed the proportion of fixed assets to total assets as a proxy to quantify asset tangibility in their research which gathered data from 124 big companies quoted on SPI of the Swiss Stock Exchange and deduced a positive correlation link betwen asset tangibility and DER. This research anticipates a positive or negative sign between DER and tangibility.

3.6.3 Size of the Firm

Firm size could be an opposite proxy for the likelihood of bankrupty cost, as suggested by the trade-off theory. Ng'habi (2012) studied who studied the factors of capital structure with support from Tanzanian quoted firms revealed, that size in connection to DER confirm to the tradeoff concept which implies that size should be important in choosing an ideal capital structure, because, bankrupt costs a smaller portion of the total value of the firm for bigger business and greater proportion of the total business's value for small firms. The POT anticipates a positive connection with leverage, since big firms are diverse and have stable earnings, asymetric infomation problem can be mitigateed. Thus, firm size is anticipated to be positively connected with DER.

3.6.4 Growth

Growth is a good explanatory factor deduced from POT and trade-off theory. The POT indicates a positive connection amongst development rate and borrowing level of a firm. This is founded on the view that a superior development rate suggests a higher demand for money, holding other things constant, a greater dependence on external funding through the preferred source of debt (Sinha, 1992). Myers (1984) states that the POT contends that directors favor retained earnings as opposed to external funding and leverage if it issues securities. Therefore, the POT suggest a higher proportion of borrowings in capital structure of growing firms than those of the stagnant ones. Ahmed, Nasir and Ullah (2011) by utilising information from Pakistan capital maket also conclude that the development rate shows no support of STT. The study anticipates a positive or negative sign amongst DER and growth.

3.6.5 Liquidity

Liquidity is the proportion of current assets to current liabilities. Charandura's (2012) study revealed the coefficient of liquidity to be negative related to leverag and significantly important in influencing capital structure. Saarani and Shahadan (2013) in their contrast of capital structure factors between small and medium enterprises (SMEs) and large firms in Malaysia revealed that liqudity is the critical variable for SMEs in determining capital structure. Similarly, Gharaibeh (2015) analysis of the determinans of capital structure of a firm with empirical support from Kuwait states that liquidity is an important determinant of capital structure for firms quoted on KSE. The study expects a negative connection among liquidity and leverage.

3.6.6 Tax-Shield

A firm that funds its activities with more debt will advantage from the 'interet taxshield' that liability offers. The advantage of borrowing is promoted by the trade-off concept says that the higher the tax sum a business has to pay, the greater is the debt it will have in its capital structure. Taxshield is perceived to be an important determinant that influence the amount of borrowing that a business has to have in its capital structure (Barclay and Smith, 1999). The more profitable a company is, the more is the amount of tax it would have to pay on its interest payments. To avoid paying a lot in tax, firms might prefer to take more debt because interest payments artificially reduce the profits of the firm and consequently they pay a lesser amount of tax on their profits. Therefore, by acquiring more debt in their capital structure, firms benefit from the 'interestt tax-shield'. This benefit of debt is promoted mainly by the STT which predicts that the more the tax amount a firm has to pay, the greater is the debt it will have in its capital structure. Fisseha (2010) study found TXS to be important at 1% and a positively connected with DER. His result were consistent with STT for shortterm borrowing but contradicted with the longterm loan. The study expects tax shields to have a positive sign.

3.6.7 Non-Debt Tax Shield

Ahmadinia, (2012) refers to NDTS as the proportion of deferred tax to net earnings before interest and tax. Non-debt tax shields are other elements in omission of interest expenses, which reduce the tax expenditures, for example depeciation (Baeur, 2005). Non-debt tax shields are concerned with the tax dedution for deprecition and investingt tax credits. Kuczynski (2005) states that the tax benefits of leverage reduces when other tax expenses like

depreciatin rise. Wald (1999) proved that leverage is negatively correlated with NDTS. The pecking order theory, suggests that there is a negative relationship between non-debt tax shields and leverage. Empirical studies namely by Demirguc-Kunt and Maksimovic (1996), De Miguel and and Zabri (2012) also postulates that there is negative relationhip amongst non-debt tax shields and DER. In Munangagwa's (2014) study a positive relation between DER and non-debt tax shields was noticed, this was not in line with the trade-off theory which is of the view that businesses do not prefer to have lower ratio of non-debt tax shields as they do not give motivation for tax savings. This study expects a negative connection between leverage and non-debt tax shields.

Table 3.1: Independent Variables and Expected Signs

Variable	Expected sign
Profitability	(-) or (+)
Tangibility	(-) or (+)
Size	(+)
Growth	(-) or (+)
Liquidity	(-)
Tax-shield	(+)
Non-debt tax shields	(-)

Source: Fisseha (2010)

3.7 Data Types and Sources

Table 3.2 summarizes the definition and measurement of variables that the study has employed.

Table 3.2: Summary of Variables and Their Measures

	VARIABLES	DEFINITION	MATHEMETICAL EXPRESSION	SOURCE
Dependent variable	Debt to Equity Ratio	Ratio of Total liability to Total Equity	$\dfrac{\text{Total liability}}{Total\ Equity}$	Financial statements of respective financial firms
Explanatory	Profitability	Ratio of Operating income to Total assets	$\dfrac{\text{Operating Income}}{Total\ Assets}$	

	Tangibility	Ratio of Tangible (fixed) assets to Total assets	$\dfrac{\text{Fixed assets}}{\text{Total Assets}}$	
	Size	Natural Logarithm of Total Assets	ln(Total Assets)	
	Liquidity	Measure of Current Assets to Current Liabilities ratio	$\dfrac{\text{Current Assets}}{\text{Current liabilities}}$	
	Growth	Percentage increase (change) in total assets	$\dfrac{\text{TA yr1} - \text{TA yr0}}{\text{TA yr1}}$	
	Tax shield	Measured with the product of interest expense multiplied by corporate tax rate	(Interest expense)X(Tax rate)	
	Nod-debt tax shields	Ratio of NDTS as depreciation divided by total assets	$\dfrac{\text{Depreciation}}{\text{TotalAssets}}$	

Source: Fisseha (2010)

This research includes an examination of companies quoted and not listed on the stock exchange and the period covers seven years. Subsequently the methodology utilizes both cross sectional and time series. Therefore, the gathered information was for 7 years of 9 companies which will result in 63 examinations. The duplication of similar units after some time and detecting the similar number of units over time is advantageous as compared to other alternatives. The major advantages of panel data are that, it permits control of specific unseen characteristics of single companies, it enables the examination of dynamic changes using the repeated cross section of studies and it gives more useful information, greater fluctuation, less collinearly among factors, more degrees of flexibility and more productivity (Baltagi, 2011). For instance, panel information can link companies, people, nations and others over time and the presents of heterogeneity is mutual in these components. Hence, panel information considers heterogeneity in the components under examination. Panel information also, allows the research of more complex interactive equations to be done.

This study used secondary data since it is more reliable, readily available and economical compared to primary data which is more subjective to intentional bias by respondents. Also secondary data was used because it consumes less time when collecting the data and it is

much easier to process and draw conclusions. However secondary data has demerits such as it is prone to errors of calculation, forgery, extrapolation and interpretation and can also be shown in empirical studies thereby distorting the validity of the results attained and lastly accuracy of secondary data is difficult to verify

3.8 Estimation Procedure

The study will make use of the ordinary least square regression model for tests. Two regression models will be done, one for listed firms and the other for non-listed firms, the results between the two regression models will then be analysed to see if there are differences in factors that determine capital structure between listed and non-listed firms. The model has been chosen because it is capable of explaining the linear relationship between variables. Appropriate diagnostic tests for normality, multicollinearity, heteroscedasticity, detection of outliers' and specification of the model were made so as to make the available data give results that are reliable and also to make the model fit the data. STATA 13 software was used to regress the data.

3.8.1 Normality Test

To determine whether information normally dispersed and also to calculate how likely an underlying casual variable is to be normally dispersed normality test is going to be conducted to the data. This study will use non-graphical tests of normality such as Skewness/Kurtosis test to test for normality.

3.8.2 Heteroscedasticity Test

Heteroscedasticity is a systematic pattern in the errors where the fluctuations of the errors are not stable (Gujarati, 2003 p387). Gujarati (2004) states that heteroscedasticity emerges when there is unequal variance on the disturbance error terms. This study will use the Breusch-Pagan/Cook-Weisberg Test for testing heteroskedasticity. Ordinary least square estimators are made inefficient by heteroscedasticity on the grounds that the evaluated fluctuations and covariance of the coefficients (β_i) are one sided and conflicting and along these lines and thus, the analysis of concepts will never again be substantial.

3.8.3 Multicollinearity Test

Gujarati (2004) states that multicollinearity is the presence of a perfect or exact linear connection between some independent factors of the regression equation. To look at the level of multicollinearity between the independent factors the study made use of the pair-wise

correlation matrices amongst the selected variables. In theory, if coefficient correlation amongst the variables in the model is greater than 0.8 one of the variables may need to be dropped from the model.

3.8.4 Model Specification Test

A model specification inaccuracy happens when the estimated regression equation does not include the correct independent factors. To determine that the regression equation used was correctly stated, the researcher used the link-test from STATA 13 to detect model specification error.

3.9 Summary

The chapter debated the research design which follows a combination of experimental and descriptive research design. The chapter also illustrated the specified model which the researcher adapted from Fisseha 2010 study. The type and source of data used was also stated, where the researcher stated the use of secondary data which he accessed form company websites, ZSE and RBZ website. Lastly the researcher described the estimation procedure, where he listed and explained four procedures namely stationarity test, heteroscedasticity, multicollinearity and model specification test.

CHAPTER 4: DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter comprises of the results attained throughout the study as guided by the research methodology, building on literature review drawn in the proceeding chapters. Results interpretation will be done in accordance with the objectives and study questions in chapter one. Hypothesis testing will also be carried out and a summary of the research findings will be given at the end of the chapter. The chapter comprises of diagnostic test results and regression results, as well as hypothesis testing and a summary.

4.2 Diagnostic Test Results

In calculating the Ordinary Least Squares equation essential procedural tests such as normality, heteroscedasticity, multicollinearity and model specification were done and the accompanying outcomes were attained.

4.2.1 Normality Test Results

To determine if the data is normally distributed or not, also to calculate how likely a causal variable is to be normally dispersed, normality tests of data was carried out. Gaussian (normal) is found when we look at a graph to see if the distribution deviates from a bell-shaped normal distribution. The test for normality used non-graphical (Skewness/Kurtosis). The test for normality using the Skewness/Kurtosis test is non-normal if the value is below 0.05 and if the value is above 0.05 then the data is said to be normal as shown on Table 4.1 below.

Table 4.1: Skewness/Kurtosis Tests for Normality

Variable	adj chi2		Prob>chi2	
	Listed	Non-listed	Listed	Listed
Resid	4.12	6.69	0.1103	0.1053

Source: Stata

The study tested for normality of the data (listed and non-listed financial firms respectively) using the Kolmogorov-Smirnov test (K-S) test as shown on the above Table 4.1. The test shows a p-value of 0.1103 and 0.1053 respectively, these figures are more than 0.05 therefore

we accept the H_0 that the residual values are normally distributed and proceed to estimate the model.

4.2.2 Heteroscedasticity Test Results

Heteroscedasticity shows a pattern in the disturbance term in which the variance of errors are not persistent (Gujarati, 2003). This implies that the error inconsistencies related with the equation will not be equal across all levels of the explanatory factors. This study used Breusch-Pagan/Cook-Weisberg non-graphical methods to test for heteroskedasticity and the results obtained are presented in Table 4.2 below. The Breusch-Pagan Test of standardized residuals to test for data heteroscedasticity showed insignificant heteroskedasticity

Table 4.2 Breusch-Pagan/Cook-Weisberg Test for Heteroskedasticity

	Listed	Non-listed
Chi2 (1)	0.36	0.63
Prob > chi2	0.1531	0.4203

Source: Stata

H_0: Constant variance

Variables: fitted values of DER

H_0 is constant variance implying that there is no problem heteroskedasticity in the information and the *p*-value is more than 0.05 so we can dismiss H_0 of constant variance thus the data if free from heteroskedasticity and proceed to estimate the regression model.

4.2.3 Multicollinearity Test Results

Gujarati (2003) postulates that a linear relationship between independent variables may result in the regression model being biased. Thus, this study employed the pair-wise correlation matrixes technique as shown in Table 4.3 to detect the problem of multicollinearity.

Table 4.3 Pair-Wise Correlation Matrix between Explanatory Variables

	PR		TN		SZ		GR		LQ		TXS		NDTS	
	Listed	Non-listed	Listed	Non-listed	Listed	Non-listed	Listed	Non-listed	Listed	Non-listed	listed	Non-listed	Listed	Non-listed
PR	1.00	1.00												
TN	-0.43	-0.13	1.00	1.00										
SZ	0.14	0.21	-0.05	0.43	1.00	1.00								
GR	0.07	0.10	-0.08	-0.06	-0.12	0.04	1.00	1.00						
LQ	0.33	0.31	-0.58	-0.72	0.05	-0.18	-0.04	0.16	1.00	1.00				
TXS	0.42	-0.26	-0.40	0.38	0.13	0.51	-0.15	-0.07	0.14	-0.25	1.00	1.00		
NDTS	-0.35	0.47	0.79	0.54	-0.08	0.39	-0.18	0.18	-0.24	-0.34	-0.43	0.16	1.00	1.00

Source: Stata

Collinearity strength should not exceed 0.8 since it is presumed to be almost absolute multicollinearity and must be adjusted. Therefore, correlation coefficients should not surpass 0.8 for them not to be extremely correlated with other variables. This is upheld by the connection which is under 0.8 between variables as shown on the above table, hence the model does not suffer from multicollinearity. This imply that these explanatory factors are autonomous of each other and we reject the **H₀** stating that the equation is free from multicollinearity and we can now move on to estimate the model.

4.2.4 Model Specification Test Results

The model estimated for regression should be correctly spelled out such that the exact set of explanatory factoors are included in the model. A model is said to suffer from specification error when it does not include (omits) the correct set of explanatory variables. The model used the Link test to test whether the model is correctly specified or not.

The study also performed the Link test which has a null hypothesis that states that the regression model is correctly specified. The Link test results for listed firms' model in Table4.4 strongly show that (_hat) and (_hatsq) are statically insignificant with *p*-value being greater than the 0.05 significant level. The results for non-listed firms' model also showed insignificant *p*-values of 0.212 and 0.078 for (_hat) and (_hatsq) respectively. These results revealed that the models were correctly specified and there are no omitted variables in the model, thus we can now proceed to estimate the regression model.

Table 4.4: Link Test for Model Specification

DER	Coef.		T		P > t	
	Listed	Unquoted	Listed	Unquoted	Quoted	Unquoted
_hat	1.323086	.4260018	1.60	1.27	0.122	0.212
_hatsq	-.0298698	.0345136	-0.39	1.82	0.698	0.078
_Cons	-.8357028	1.829668	-0.39	1.24	0.703	0.224

4.2.5 Descriptive Statistics

Table 4.9 shows the summary of the descriptive statistics for factors employed in the sample. The mean, standard deviation, minimum and maximum of the dependent factor and the seven explanatory factors from the year 2009 to 2010.

Table 4.5: Summary of Descriptive Statistics

Variable	Mean		Std. Dev.		Min		Max	
	Listed	Non-listed	Listed	Non-listed	Listed	Non-listed	Listed	Non-listed
Debt to Equity Ratio	5.516	8.686	1.226	4.886	3.686	1.987	7.879	22.50
Profitability	.0503	.0473	.0357	.0289	-.034	-.007	.0102	.0123
Tangibility	.0955	.1162	.0487	.1688	.0503	.0112	.2125	.7538
Size	19.66	16.12	1.220	2.609	14.63	12.74	21.46	19.52
Growth	.1708	.1167	.0148	.2023	-.051	-.582	.6166	.5393
Liquidity	1.087	1.038	.0575	.1663	.9699	.3701	1.199	1.210
Tax shields	52503	71106	72368	58426	72765	77812	2.39e+07	22213
Non-Debt Tax Shields	.0057	.0048	.0024	.0034	.0029	.0006	.0113	.0162

Descriptive statistics summaries the collection of measurements of location and variability. The mean debt to equity ratio of listed and non-listed financial firms is 5.516442 and 8.685771 respectively. Therefore, this indicates that listed and non-listed financial firms are financed with debt at approximately 5 and 8 times greater than equity options respectively. Non-listed firms are inclined to deposit mobilisation than to equity financing, however, this was different with listed banks as they used half of equity and debt as a source of finance.

Annual average profitability of listed and non-listed financial firms' are 5.03% and 4.73% respectively. The maximum attained average profitability rate is 10.17% and 12.31% whereas the minimum recorded average profitability rate is -3.42 and -0.67 and the standard deviation is 0.04 and 0.03 signifying constant profitability rate every year for each bank.

Mean asset composition is 9.6% and 11.6%, indicating that the banks non-current assets represents 9.6% and 11.6% of total assets. Tangibility of Zimbabwean commercials banks determined by the proportion of fixed properties to total assets ranges from 5% to 21% for listed firms and 1.1% to 75% for non-listed firms. The high difference between listed and non-listed financial firms tangibility may be attributable to a high property and equipment purchase by non-listed firms as compared to listed firms.

Total assets of the banks have an average growth rate of 17.07% and 11.67% for the seven years study period. Asset growth ranges from -5.11% to 61.66% for listed banks and -58.19% to 53.93% for non-listed banks.

Size has a mean value of 19.66% and 16.11% respectively showing that listed firms grew by a 3.55% greater than non-listed firms.

Lastly tax shields and non-debt tax shields showed that both quoted and unquoted financial companies had large benefits from tax shields as compared to non-debt tax shields over the seven year period.

4.3 Regression Analysis Results
The researcher proceeded to estimate the model after diagnostic tests had been carried out. The regression results generated are debated in connection to each of the explanatory factors as shown in Table 4.6. The technique to follow tested the hypothesis.

1. **H_0** states that there is no relationship between leverage and the explanatory variable and the **H_1** is stated as follows that there is a relationship between leverage and the explanatory variable.
2. The level of importance ought to be less than 1, 5 and 10% for probability.
3. The T-statistic ought to be more than 2.
4. A decision rule is to reject either H_0 or reject H_0 and accept H_1

Table 4.6: Linear Regression Results

Variable	Model for Listed Banks	Model for Non-listed Banks
Profitability	1.561983***	53.86762**
Tangibility	-18.13808***	-49.71121***
Size	1.115409***	.0107713
Growth	1.734343**	-5.29716*
Liquidity	-21.01157***	-42.592***
Tax Shields	4.53e-08**	-9.91e-07
Non-Debt Tax Shields	23.10645	-170.4754**
Constant	27083***	58.08749***
R-squared	0.8686	0.6900
Adj R-squared	0.8227	0.6096
F	18.89	8.58
Prob > F	0.0000	0.0000

The starred coefficient are statistically significant at 1% (∗∗∗), 5% (∗∗) and 10% (∗).

Source: Stata

The R^2 is 0.8686 and 0.6900 for listed and non-listed banks, respectively. This indicates that 86.86% and 69% of the variations of DER are explained by firm specific factors included in the equation. This shows that the equation has great explanatory power. Additionally, the adjusted R^2 shows that the model explains 82.27% and 60.96% of the variation, respectively, and the error term captures the remainder. The F-static value of 18.89 and 8.58 which is greater than the critical value of F and P-value of 0.00 for both quoted and non-quoted financial companies data suggests that the whole regression model is significant and proves that there is an important connection amongst DER and explanatory variables (PR, TN, SZ, GR, LQ, TXS and NDTS).

The estimated regression equation will be as follows:

Listed financial firms:

DER = 27.08 + 1.56PR − 18.14TN + 1.12SZ + 1.73GR - 21.01LQ + 4.53e-08TXS + 23.11NDTS

Non-listed financial firms:

DER = 58.09 + 53.87PR − 49.71TN + 0.01SZ − 5.30GR - 42.59LQ - 9.91e-07TXS - 170.48NDTS

The t-statistics of the linear regression results for listed financial firms shows that variables namely PR, TN, SZ and LQ are statically significant at 1% while GR and TXS were statically significant at 5%. For non-listed financial firms TN and LQ were statically significant at 1%; NDTS is significant at 5% whilst PR and GR are statically significant at 10%.

Profitability, size, growth, tax-shields and non-debt tax shields for listed financial firms' have a positive connection with debt to equity ratio as denoted by the respective coefficients of 1.56, 1.12, 1.73, 4.53e and 23.11. Tangibility and Liquidity for listed financial firms have a negative effect on debt to equity ratio, this is confirmed with their coefficients -18.14 and -21.01 respectively. For non-listed financial firm's profitability and size have a positive relationships with debt to equity ratio; whilst tangibility, growth, liquidity, tax shields and non-debt tax shields have negative relationships in conjunction with debt to equity ratio as represented by their respective coefficients.

4.4 Hypothesis Testing and Discussion of Results

Furthermore, to prove whether capital structure choices made in Zimbabwean commercial banks provide empirical evidence for the existing theories, regression results are compared with the following table which will summaries the hypothesized, anticipated and obtained signs of explanatory variables.

Table 4.7: Hypothesized, Expected and Observed Signs of Explanatory Variables

Explanatory Variable	Hypothesized signs	Theoretical signs of explanatory variables based on capital structure theories					Observed sign	
		STT	POT	ACT	SAT	MTT	Listed Banks	Non-Listed Banks
Profitability (PR)	- or +	+	-	?	+	?	+	+
Tangibility (TN)	- or +	+	+	+	?	?	-	-

Size (SZ)	+	+	-	+	?	+	+	+
Growth (GR)	- or +	-	+	-	-	?	+	-
Liquidity (LQ)	-	+	-	+	+	?	-	-
Tax-Shield (TXS)	+	+ (short term) - (long term)	?	?	?	+	+	-
Non-Debt Tax Shield (NDTS)	-	-	?	?	?	?	+	-

Source: Fisseha (2010)

The above table shows a summary of the anticipated, theoretical and detected signs of independent variables. (+) suggests that there is a positive connection amongst the explanatory variable and debt to equity ratio, (-) suggests that there is a negative connection amongst the explanatory variable and DER and (?) indicates that there is no clear prediction of the theoretical signs. The following subsections below deal with hypothesis testing and interpretation of regression results.

4.4.1 Debt to Equity Ratio with Profitability

Beta coefficients associated with profitability for both quoted and un- listed financial organisations rejected H_0 and accepted H_1 that there is an important connection betwen profitability and debt to equity ratio. Profitability is projected to be positively connected with debt to equity ratio and this rconnection is statically importatnt at 1 % for listed financial firms and significant at 5 % for non-listed firms. This implies that commercial banks in Zimbabwe maintain a high debt to equity ratio. These results support the Static trade-off theory, Signaling approach theorem and are line with the findings of Munangagwa (2014) however they are not consistent with the POT and ACT (see Table 4.11). The results suggests that as financial firms make more profits their borrowing appetite also increase and this may be due to the fact that the Zimbabwean economy is still experiencing economic hardships. These results oppose the results of Timan and Wessels (1988), Rajan and Zingles (1995), Kuczynki (2005) and Fisseha (2010) in developed countries and those of Mutenheri et al (2003) and Chidoko et al (2011) in Zimbabwe, their findings were that leverage had a

negative connection with proftability and supported the POT. This was maybe attributable to high retained earnings, accumulated by profitable firms hence giving them the ability to avoid debt funding and the costs associated with debt.

4.4.2 Debt to Equity Ratio with Tangibility

The coefficient for tangibility is negative and statistically significant at 1 % for both listed and non-listed financial firms. Therefore, we reject H_0 which states that tangibility has no significant relationship with debt to equity. The results indicate that tangiblity is a strong determinant of capital structure decisions for commercial banks in Zimbabwe. The findings reveal that a rise in the ratio of fixed properties decrease the DER, thus they prefer equity instead of debt. The negative connection can be justified by the higher cost of financial distress, which companies with low collateral value of assets face, as well as their inability to issue secured debt. The influence of tangibility on the debt level is stronger in the both listed and unlisted financial firms, because of the higher exposure to the predictions made by the Trade-off Theory. The observed sign contradicts with STT, POT and ACT (see Table 4.11), which are of the opinion that the higher the security the higher the tendency for firms to heighten borrowings. This may be attributable to the fact that firm with high collateral will use its assets (collateral) to access debt. Nonetheless, the negative coefficient coincides with the research findings of Munangagwa (2014) in Zimbabwe. Other findings such as Ahmad et al (2011) in Pakistan and Chidoko et al (2012) in Zimbabwe showed positive connection amongst tangibility and DER.

4.4.3 Debt to Equity Ratio with Size

The results for listed financial firms found size to be positively related with leverage and statistically significant at 1 %. However, the results of non-listed financial firms found the coefficient of size to be positively related with debt to equity ratio but statistically insignificant. We reject H_0 for listed banks and we accept the H_0 for non-listed banks which expresses that there is no significant connection amongst DER and size. The positive coefficients for both quoted and non-quoted financial organisations suggest that larger commercial banks tend to borrow more capital than smaller banks. This is due to the fact that bigger companies have less expensive access to debt and have various funding sources, and also size can be utilised as an intermediary for the likelihood of default subsequently big organisations have constrained odds of default (Ahmad et al, 2011). Another possible reason for this relationship maybe due to higher diversification and lower risk of bankruptcy, lower

information asymmetry and decreased direct cost of debt or disciplining effect of leverage. The positive coefficient supports the STT and ACT. Empirical studies namely, Booth et al (2001), Mutenheri (2003), Chidoko *et al.* (2012) and Munangagwa (2014) found a positive significant relationship.

4.4.4 Debt to Equity Ratio with Growth

We reject H_0 and conclude a significant relationhip between leverage and growth since the coefficient of growth is found to be statistically significant at 5 % and positively related with leverage for listed financial firms. Listed financial firms results show that as growth opportunities increase the firm increase debt. This kind of relationship exists due to the increase in the financial needs of a growing company and inability to cover them with internally generated funds. For, non-listed financial firms the coefficient for growth is negatively related with leverage and statically significant at 10%. Non-listed financial firms results show that as growth opportunities increase the firm decrease debt. Thus, non-listed financial firms tend to utilize more retained earnings as compared to listed banks. The positive coefficient of listed banks supports the POT and contradicts the STT and ACT; conversely the results for non-listed financial firms supports the STT and ACT but contradicts the POT (see Table 4.11). Studies done by Titman and Wessels (1988), Rajan and Zingles (1995), Booth et al (2001), Fisseha (2010) and Yazici et al (2013) obtained a negative relationship amid DER and growth. Mutenheri et al (2003), Ahmad et al (2011) and Munangagwa (2014) studies observed a positive relatinship between leverage and growth.

4.4.5 Debt to Equity Ratio with Liquidity

This study found the coefficient of liquidity to be negatively related with leverage ratio for both quoted and unquoted financial orgganisations. Liquidity was statically significant at 1 % for both listed and non-listed financial firms. Thus we reject H_0 that states there is no significant relationship between leverage ratio and liquidity. The results are in accordance with the Pecking order hypothesis which states that organisations are probably going to make liquid reserves from generated income and would have no compelling reason to borrow (Amad *et al*, 2011).

The findings of liquidity contradicts the STT, ACT and SAT (see Table 4.11). The explanation behind such a result could be because of the liquidity problems that the financial system had been cope with since the inception of the multiple currency system and this is

inferebale from the way that national bank is not performing one of its roles which is printing of money. Empirical evidence from Mutenheri (2003), Amad et al (2011) and Munangagwa (2014) reported a negative relationshp between leverage and liqudity, therefore they back the research findings.

4.4.6 Debt to Equity Ratio with Tax Shields

The coefficient of tax shields for listed financial firms is found to be positive and statically significant at 5 % with leverage ratio, whilst negatively related with leverage for non-listed financial firms and statistically insignificant. Therefore we reject H_0 for listed financial firms and we also accept the H_0 for unquoted financial organisations. The result for quoted financial companies is in line with the STT for shortterm loan but contradicts the longterm borrowing sign. Similarly, the results of non-listed financial firms contradicts the static trade-off theory short term loan but coincides with long term debt. This indicates that quoted banks use more shortterm borrowing financing as compared to non-listed banks that use long-term borrowing. The positive coefficient results for listed banks also means that listed banks are benefiting more from tax shields as compared non-listed banks.

4.4.7 Debt to Equity Ratio with Non-Debt Tax-Shields

Under this study non-debt tax-shields for listed banks has a positive coefficient while non-listed banks have a negative coefficient. The relationship between leverage and NDTS for listed banks is not statistically significant whilst statistically significant at 5 % for non-listed financial firms. The possible reasons for a positive relationship with leverage for listed banks may be that one mentioned by Browns (1993) that organisations with big sizes of fixed properties tend to increment secured borrowing since they are not exposed to excessive danger and interest charge as compared to unsecured debt. Theoretical expectations for NDTS are mixed however the STT theory expects a negative sign thus coinciding along with results for non-listed financial firms. Huang and Song (2006) in the US, Bauer (2011) in Czech Republic and Chidoko et al (2011) in Zimbabwe recorded a negative relation ship between NDTS and DER. Ahmad et al (2011), Wells et al (2011), Yazici (2013) and Munangagwa (2014) in Zimbabwe reported a positive relation ship among DER and NDTS. The results for listed financial firms shows that debt to equity ratio increases as NDTS are increased, hence firms have an appetite to borrow regardless of not having any benefits from tax savings.

4.6 Summary

This chapter presented the results of the tests done and these were in the form of tables. The regression results reveal that profitabilty, tangibility, size, growth, liqudity and tax-shields are statistically significant factors that determine capital structure for listed financial firms. Profitabilty, liquidity, growth, tangibility and non-debt tax shields were revealed as variables that influence capital structure for unquoted banks. The relationship between leverage, profitability and growth is strong for listed banks. Non-listed banks have a strong relation between DER and non-debt tax-shields. The regression results indicates profitability, tangibility, growth and liquidity as major significant explanatory variables in both listed and non-listed banks. Furthermore, these results were analysed against formulated hypothesis, research questions and objectives in chapter one. A table with a summary of hypothesized, expected signs, theoretical explanatory variable signs was given. Table 4.7 provides evidence that listed and non-listed banks in Zimbabwe support the Static trade-off theory to greater extend and to a lesser extend supports the POT and the SAT. Also study questions and objectives were answered using the regression results. The discussed results in this chapter will be of great significance within the following chapter when deriving assumptions and constructing suggestions.

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The major purpose of the research was to establish the factors that determine capital structure for listed and non-listed financial firms and to find out if listed financial firms have an advantage over non-listed financial firms in terms of capital structure. This chapter comprises of the summary of the study, conclusions and recommendations for further study.

5.2 Summary of the Study

The main purpose of this research was to establish first if a relationship between leverage and firm specific variables for listed and non-listed banks in Zimbabwe exists; and to ascertain if listed financial firms have capital advantages over non-listed financial firms. The researcher also wanted to compare the determinants of capital structure between quoted and unquoted firms' banks in Zimbabwe. The researcher employed various ideas from different researchers who had studied capital structure determinants before for a comprehensive analysis of the study. Various capital structure theories reviewed in the study are the Trade-off theories, POT, signaling approach theorem, ACT and MTT. The trade-off theory is based on the choice made by a firm on how much debt and equity it should use as capital. The POT is of the opinion that mangers will behave in the best behavior sought after by the firm investors, thus, managers will utilize internal funding then debt and lastly they will use equity. Signaling approach theorem postulates that managers have information advantage on the performance of the firm over investors and will use this advantage to influence decision making but a challenge will rise when both parties possess the same information. The agency costs theory is of the view that both debt and equity possess agency costs which include but not limited to opportunity costs. These costs can be monitored through the use of short term debt. Lastly, the market timing theory explains how a firm chooses its funding method which is either through debt or equity and this is done by selection of the most suitable funding method at the time. The study adapted Fisseha's 2010 model and this was used for regression analyses. Data for listed (4 firms) and non-listed (5 firms) financial firms was collected from financial statements over a 7 year period from 2010 to 2016 and ratios were calculated for linear regression. Diagnostic tests were carried out as well as Ordinary Least Squares regression analysis. Findings reveal that profitability, tangibility, size, growth, liquidity and tax shields are statistically significant factors that determine capital structure for listed

financial firms. Profitability, tangibility, growth, liquidity and non-debt tax shields were revealed as determining variables of capital structure for unquoted financial companies. The relationship between leverage, profitability and growth is strong for listed banks. Non-listed banks have a strong relationship between DER and non-debt tax shields. The results also indicated that the STT, SAT and POT were in support of capital structure decisions for banks in Zimbabwe. The study also gave an answers to the research questions, one notable answer was that which indicated that listed firms have some sort of an advantage over non-listed firms in capital structure decisions. From the findings conclusions can now be drawn and recommendations can now also be given.

5.3 Conclusions

Conclusions can be extracted building on the results discussed in the preceding chapter and these are as follows:

❖ Listed financial firms have an advantage over non-listed financial firms but to a smaller extend. The advantage is in the form of accessing equity on the stock exchange. This is confirmed by the negative relationship betwen DER and tangibility, thus a rise in the proportion of fixed assets reduces the debt to equity ratio. Therefore, financial firms prefer to use equity instead of debt to finance their investment activities. Listed banks can easily access equity through public selling of shares as compared to non-listed banks.

❖ Capital structure theories explain capital structure choices of Zimbabwean listed and non-listed financial firms. This is demonstrated mostly when the observed sign conforms to the theoretical capital structure theories as shown in Table 4.7. These capital structure relevancy results suggest that capital structure theories are partially accepted in the commercial banking sector of Zimbabwe.

❖ Factors affecting capital structure decisions of listed banks are related to those that affect non-listed banks. This is confirmed by the results which indicates profitability, tangibility, growth and liquidity as significant explanatory variables in both listed and non-listed banks, however a major difference noticed is on the variable growth which exhibits different coefficient signs between (positive sign) listed and (negative sign) non-listed banks.

❖ The regression results showed that out of 7 explanatory variables 6 variables (profitability, tangibility, size, growth, liquidity, tax shields) are statistically significantly related to debt to equity ratio for listed banks and 5 variables (profitability, tangibility, growth, liquidity, non-debt tax shields) were statistically significantly related to debt to equity ratio as well. These variables play a significant role in determining the capital structure of banks in Zimbabwe.

5.4 Recommendations

The empirical results of this study may benefit investors, professional managers, lenders, academicians and policymakers. The following are some recommendations are based on the major findings discussed above:

5.4.1 Banks in Zimbabwe Should Use Debt to Finance Their Activities

Banks in Zimbabwe should utilize their profitability and size to access more debt so that since there is positive re1ationship with DER. The positive relationship mean that as firms get more profitable and big in size their appetite to borrow also increases. Therefore, if firms are large in size they can use their size as collateral to acquire big loans and as we11 as issue out debt securities.

5.4.2 Financial Assistance Should Be Extended at a Market Rate that Promote Growth

The government and the central bank ought to give financi1 aid to banks at a maket rate that encourage fair and an even environment and in turn this will motivate banks to effectively use the funds extended to them in a way that will foster company growth and improve performance. The government should intervene also to reduce extra costs associated with acquiring or issuing debt and selling of shares to gain equity which banks incur so that they may utilize these options when raising funding. The government has to ensure that the tax system stimulates investing as well as providng encouragements and tax reliefs where conceivable and probable.

5.5 Suggestions for future studies

The researcher suggests further studies to be conducted on the determinants of capital stucture for Zimbabwean insurance firms to examine how these insurance firms fund their businesses.

REFERENCES

Abor, J., (2005) Determinants of the Capital Structure of Ghanaian Firms, AERC Research Paper 176, African Economic Research Consortium, Nairobi

Abor, J. (2008) Determinants of the Capital Structure of Ghanaian Firms, African Economic Research Consortium, Nairobi, 176, 1-34

Ahmad, F., Haq, J., Nasir, U.R., Al, M and Ullah, W., (2011) Extension of Determinants of Capital Structure: Evidence from Pakistani non-financial firms, African Journal of Business Management, 5(28), 11376-11385

Ahmadinia, H., Afrasiabishani, J. and Hesami, E., (2012) A comprehension Review on Capital Structure theories, The Romanian economic Journal, 45, 1-24

Allen, F. (1993) Stock Markets and Resource Allocation. Capital markets and financial intermediation, 81108

Al-Mutairi, A. and Naser, K., (2015) Determinants Of Capital Structure Of Banking Sector In Gcc: An Empirical Investigation, Asian and Economic Review, 5(7), 959-972

Ali, I. (2011) Determinants of capital structure: Empirical evidence from Pakistan, Business Administration, University of Twente Enschede, Netherlands

Amidu, M. (2007) Determinants of capital structure of banks in Ghana: an empirical approach, Baltic Journal of Management, 2(1), 67-79

Anarfo, E.B., (2015) Determinants Of Capital Structure Of Banks: Evidence From Sub-Sahara Africa, Asian Economic and Financial Review, 5(4), 624-640

Antoniou, A., Gurney, Y. and Paudyal, K., (2002) Determinants of Corporate and capital structure: capital market oriented versus Bank oriented institutions, Journal of financial and Quantitative Analysis

Arcaaravci, S.K. (2015) The Determinants of Capital Structure: Evidence from the Turkish Manufacturing Sector, International Journal of Economics and Financial Issues, 5(1), 158-171

Arrow, K. J. (1973) Higher education as a filter, Journal of Public Economics, Elsevier, 2(3), 193-216

Asker, J., Farre-Mensa, J. and Ljungqvist, A. (2014) Comparing the Investment Behavior of Public and Private Firms, The Review of Financial Studies, 28(2), 342-390

Ayanda, A.M., Christopher, E.I., Mudashiru, M.A. and Isaac, A.S. (2013) Determinants of Capital Structure in Nigerian Banking Sector, International Journal of Academic Research in Economics and Management Sciences, 2(4), 2226-3624

Baker, M. and Wurlger, J. (2002) Market timing and capital structure, Journal of Finance, 57, 1–32

Balcilar, M., Karadeniz, E., Kandir, S.Y. and Onal, Y.B. (2009) Determinants of capital structure: evidence from Turkish lodging companies, International Journal of Contemporary Hospitality Management, 21(5), 594-609

Baltagi, B.H. (2001) Econometric Analysis Of Panel Data 2nd Edition, Chichester, John Wiley and Sons Ltd

Banerjee, S., Almas, H. and Clas, W. (2000) The Dynamics of Capital Structure, SE/EFI Working Paper Series in Economics and Finance, 333, 1-20.

Barclay, M. AND Smith, C.W. (1999) The Capital Structure Puzzle: Another look at the evidence, Journal of Applied Corporate Finance, 12, 8-20

Barclay, M. J. and Smith. C. (2005) The capital structure puzzle: Evidence Revisited, Journal of Applied Corporate Finance (17), 9-17

Bas, T., Muraglou, G. and Phylaktis K. (2009) Determinants of capital Structure in developing countries

Bassey, N.E., Arene, C.J. and Akpaeti, A.J., (2012) Comparative Study Of The Determinants Of Capital Structure Of Quoted and Unquoted Agro-based Firms In Nigeria, International Journal of Food and Agricultural Economics, 2(2), 155-168

Barakat, K.M. and Rao, P.R., (2003) The role of taxes in Capital Structure: Evidence from taxed and non-taxed Arab Economies, MPRA 25472

Bauer, P., (2004) Determinants of Capital Structure: Empirical Evidence from the Czech Republic, Czech Journal of Economics of Finance, 54, 2-21

Bender, R., and Ward, K. (1993) Corporate Financial Strategy, Oxford, Butterworth-Heinemann.

Bevan, D., and Danbolt, J., (2002) Capital Structure and its Determinants in the UK: A Decomposition Analysis, Applied Finance Economics, 14, 55-66

Bayrakdaroglou, A., Edge, I. and Yazici, N., (2013) A Panel Data Analysis Of Capital Structure Determinants: Empirical Results From Turkish Capital Market, International Journal Of Economics And Finance 5(4), 131-140

Bodie, Z., Kane, A. and Marcus, S (2002) Investment 6, McGraw Hill.

Booth, L., Aivazian, V., Demirguc-Kunt, V. and Marksimivic, V., (2001) Capital Structure In Developing Countries, Journal of Finance, 30, 1409-1442

Bradley, M., Jarell, G. and Kim, H. (1984) On the Existence of an Optimal Capital Structure: Theory and Evidence, Journal of Finance, 39, 857- 880

Brander, A. and Lewis, T.R. (1986) Oligopoly and Financial Structure: The Limited Effect. American Economic Review, 76, 956-970

Brav, O. (2009) Access to Capital, Capital Structure, and the Funding of the Firm, The Journal of Finance,64 (1), 263-308

Brealey, R. and Myers S.C., (1991) Principles of Corporate Finance 4th Edition, New York, McGraw-Hill

Brigham, E.F. and Daves P.R., (2005) Intermediate Financial Management 8, Thomson-South Western

Brooks, C., (2008) Introductory Econometrics for Finance 2nd Edition, Cambridge Press

Buferna, F., Bangassa, K., Hodakinson, L., (2008) Determinants of Capital Structure of Chinese Listed Companies, Journal of Business Research, 57(12), 1341-1351

Charandura T., (2012) Determinants of Capital Structure Of Listed Firms in Zimbabwe, Business Administration, Midlands State University, Zimbabwe

Cheng, L.H., and Jiang, G.J., (2001) The Determinants of Dutch Capital Structure Choice: SOM-theme E of Dutch Capital Choice

Chen, J.J., (2004) Determinants of Capital Structure of Chinese-listed Companies, Journal of Business Research, 57, 1341-1351

Chen, S. and Chen, L., (2011) Capital Structure Determinants: An Empirical Study in Taiwan, Journal of Business Management, 5(27), 10974-10983

Chui, A.C.W., Lloyd A.E. And Kwok C.C.Y., (2002) Determinants Of Capital Structure: Is National Culture A Missing Piece To The Puzzle, Journal Of International Business Studies, 33(1), 99-128

Chidoko, C. and Hove, B., (2012) Examination of Multinational Corporations Capital Structure Decisions in Zimbabwe, International Journal of Economics 32, 1-5

Chikoko, L. and LeRoux, P., (2012) Liquidity Management by Commercial Banks In a Multiple Currencying Environment: The Zimbabwean case, Business and Social science Review 1, 1-22

De Angelo, H. and Masulis R., (n.d) Optimal Capital Structure Under Personal Taxation, Journal Of Finance And Economics, 8

DeAngelo, H. and DeAngelo, L. (2006) The irrelevance of the MM dividend irrelevance theorem, Journal of Financial Economics, 79(2), 293-315

Desai, A.M., Foley F.C. and Hines R. J (jnr)., (2003) A Multinational Perspective On Capital Structure Choice And Internal Capital Markets, Harvard University

Diamond, D. and Rajan, R., (2000) A theory of bank capital, Journal of Finance 55, 2431-2465.

Downs, W.T., (1993), Corporate Leverage and Non Debt Tax Shields: Evidence on Crowding out, The Financial Review 28,549-583

Drobetz, W. and Roger, F. (2003) What are the Determinants of the Capital Structure? Some Evidence for Switzerland, WWZ/Department of Finance, Working Paper No.4/03

Fathi, S., Ghandehari, F. and Shirangi, S.Y., (2014) Comparative Study of Capital Structure Determinants in Selected Stock Exchanges of Developing Countries and Tehran Stock Exchange, International Journal of Academic Research in Accounting, Finance and Management Sciences, 4(1), 67-75

Fama, E.F., and French, K.R., (2002) Testing Trade-Off and Pecking Order Prediction About Dividend And Debt, The Review Of Financial Studies 15, 1-33

Farooqi-Lind, R. (n.d) A Comparison of Listed vs. Non-Listed Firm Capital Structure: Evidence from Sweden, Department of Finance, Stockholm School of Economics, Box 6501, 113 93 Stockholm, Sweden

Fisseha, K.M., (2010) Determinants of Capita Structure: Evidence From Commercial Banks in Ethopia, Accounting and Finance, Mekelle University, Ethopia

Frank, M.Z. and Goyal, V.K. (2003). Testing the Pecking Order Theory of Capital Structure. Journal of Financial Economics, 67, 217-248

Friend, I. and Lang H.P., (1988) Empirical Test of The Impact Of Managerial Self Interest On Corporate Capital Structure, Journal Of Finance, 43, 273-290

Gao, H., Harford, J. and Li, K. (2013) Determinants of Corporate Cash Policy: Insights from Private Firms, Journal of Financial Economics, 109(3), 623-639

Gharaibeh, A. M. O., (2015) The Determinants Of Capital Structure: Empirical Evidence From Kuwait, European Journal of Business, Economics and Accountancy, 3(6), 2056-6018

Graham, J.R., (2000) How Big Are Tax Benefits of Debt, Journal Of Finance, 55(5) 1901-1940

Graham, J. and Harvey, C., (2001) The Theory and Practice of Corporate Finance: Evidence From The Field, Journal of Financial Economics 60, 187-243

Gropp, R and Heide, F., (2009) The determinants of bank capital structure, Online Journal, Accessed from http://ssrn.com/abstract=967417, 30 July 2017

Gujarati, D.N., (2003) Basic Econometrics: 4th Edition, Boston, McGraw-Hill

Hall, G., Hutchinson, P. and Michaelas, N. (2004) Determinants of the Capital Structures of European SMEs, Journal of Business Finance and Accounting, 31(5&6), 711-728

Harris, M. & Raviv, A. (1988) Corporate Control Contests and Capital Structure. Journal of Finance, 45, 321-349.

Harris, M. and Raviv, A. (1990) Capital Structure and the Informational Role of Debt, Journal of Finance, 45, 321-34

Harris, M. and Raviv, A. (1991) The theory of capital structure, The Journal of Finance 46, 297-355

Henrik, S. and Sandra, S. (2004).Capital Structure: A Swedish Real Estate Study, Journal of Finance, 95, 1–33.

Huang, S.G. and Song F.M., (2006) The Determinants of Capital Structure: Evidence from China, Journal of China Economics, 17, 14-36

Jensen, M.C. and Meckling W.H., (1976) Theory of the Firm: Managerial Behaviour, Agency Costs And Ownership Structure, Journal f Financial Economics, 3, 305-360

Jibran, S., Wajid, A.S., Waheed, I., Mahammed, M.T., (2012) Pecking and Pecking order theory: Evidence from Pakistan's Non-financial sector, Journal of competitiveness 4, 86-95

Jordan, J., Lowe, J. & Taylor, P. (1998) Strategy and financial policy in U.K, small firms, Journal of Business Finance and Accounting, 25(1), 1–27

Jung, W. and Kwon. Y.K. (1988) Disclosure When the Market Is Unsure of Information Endowment of Managers, Journal of Accounting Research, 26(1), 146-153

Kraus, A. and Litzenberger, (1973) A State Preference Model of Optimal Financial Leverage, Journal of Finance, 28, 911-922

Liesz, T.J. (2001) Why Pecking Order Theory Should Be Included In Introductory Finance Courses, School of Business & Professional Studies, Mesa State College, 1100 North Avenue

Lim, T.C. (2012) Determinants of Capital Structure Empirical Evidence from Financial Services Listed Firms in China, International Journal of Economics and Finance, 4(3),

Litzenberger, R. and Ramaswamy, K. (1979) The Effect of Personal Taxes and Dividends on Capital; Asset Prices: Theory and Empirical Evidence, Journal of Financial Economics

Lungi, P. and Sorin, V. (n.d) A Review Of The Capital Structure Theories, Working Paper Series

Kopyakova, A., (2017) Capital structure determinants: the evidence from listed and unlisted Dutch firm, The Faculty of Behavioural, Management and Social science, University of Twente, Netherlands

Kuczynski, C., (2005) The Determinants of capital structure; An Empirical Study of Japanese companies, (4) 241-270

Maghyereh, A. (2005) Dynamic Capital Structure: Evidence from the Small Developing Country of Jordan, Journal of Economics and Management, 13, 1-26

Maksimovic, V., Phillips, G., and Yang, L. (2013) Private and Public Merger Waves, The Journal of Finance, 68(5), 21772217

Mayer, S., and Alexander, I. (1991) Stock Market and Corporate Performance: a Comparison of Listed and Unlisted Companies, CEPR Discussion paper, (571)

Mekonnen, A., (2011) The determinants of capital structure evidence from manufacturing share companies of Addis Ababa city, School of Business and Public Administration, Addis Ababa University, Ethopia

Miguel, A. and Pindado, J. (2001) Determinants of Capital Structure: New Evidence from Spanish Panel Data, Journal of Corporate Finance, 7, 77-99

Mintesinot, A., (2010) Determinants of Capital Structure: Evidence from Selected Manufacturing Private Limited Companies of Tigray Region, College of Business and Economics, Mekelle University, Ethiopia

Modigliani, F. and Miller, M.H., (1958) The Cost Of Capital Corporation Finance And The Theory Of Investment, American Economic Review, 47, 261-297

Modigliani, F. and Miller, M.H., (1963) Corporate Income Taxes and The Cost Of Capital: A Correction, The American Economic Review, 53, 433-443

Miglo, A. (2010) Capital structure theory: where do we stand after crisis?, University of Bridgeport working paper, 4(5), 33-52

Munangagwa, C., (2014) Determinants of Capital Structure In Zimbabwe: Panel Data Analysis, Economics, Midlands State University, Zimbabwe

Mutenheri, E. and Green, C.J., (2003) Financial reform and financing decision of listed firms in Zimbabwe, Journal of African Business, 4, 155-170

Myers, S.C. (1977) Determinants of corporate borrowing, Journal of Financial Economics 5, 147-176

Myers, S.C. (1984) The Capital Structure Puzzle, Journal of finance, 39, 575-572

Myers, S.C. (2001) Capital structure, The Journal of Economic Perspectives, 15(2), 81102

Myers, S.C. and Majluf l., (1984) Corporate Financing And Investment Decisions When Firms Have Information That Investors Do Not Have, Journal of Financial Economics, 13, 187-221

Narayan M.P., (1988) Debt versus Equity under Asymmetric Information, Journal of finance and quantitative analysis

Ng'habi, B.N., (2012) Determinants Of Capital Structure: Evidence From Tanzanian Non-Financial Listed Companies, Business Administration, Open University of Tanzania, Tanzania

Niu, X.Y. (2008) Theoretical and Practical Review of Capital Structure and Its Determinants, Journal of Business and Management, 133-143

Octavia, M. and Brown, R., (2008) Determinants of Bank Capital Structure in Developing Countries, Research Paper Series, Department of Finance, The University of Melbourne, Victoria 3010, Australia

Ozkan, A., (2001) Determinants of Capital Structure and Adjustment to Long run Target: Evidence from UK company panel Data, Journal of Business Finance and Accounting, 28, 175-198

Pagano, M., Panetta, F., & Zingales, L. (1998) Why Do Companies Go Public? An Empirical Analysis, Journal of Finance, 53(1), 27-64

Pandey, I.M., (2001) Capital Structure and Firm Characteristics: Evidence from An Emerging Market, IIM Working paper, 10-104

Pettit, R. R., and Singer, R. F. (1985) Small Business Finance: A Research Agenda, Financial Management, 14(3), 47-60

Qian Y.M., Tian Y., and Wirjanto T.S. (2007) An Empirical Investigation into the Capital-Structure Determinants of Publicly Listed Companies: A Static Analysis, University of Waterloo

Rajan, R., and Zingales, L., (1995) What do we know about Capital Structure? Some evidence from International data, Journal of finance, 50, 1421-1460

Ramalho, J. and Silva, J. (2009) A two-part fractional regression model for the financial leverage decisions of micro, small, medium and large firms, Quantitative Finance, 9(5), 621-636

Reserve Bank of Zimbabwe, http://www.rbz.co.zw/banking-institutions.html , Accessed 31 July 2017

Ross, S.A., (1977) The Determinants of Financial Structure: Incentives- Signalling Approach, Bell Journal of Economic, 8(1), 23-40

Ross, S. (2015) What is capital structure theory?, http://investopedia.com/ask, Accessed 15 August 2017

Saarani, A.N and Shahadan, F. (2013) The Comparison Of Capital Structure Determinants Between Small And Medium Enterprises (SMEs) And Large Firms In Malaysia, International Journal Of Economics And Finance Studies, 5(1), 1309-8055

Sbeiti, W., (2010) The Determinants of Capital Structure: Evidence from the GCC countries, International Research, Journal of Financial and Economics, (47) 1550-2887

Serfeit, B., and Gonenc, H., (2008) The International evidence on the pecking order hypothesis. Journal of Multinational Financial Management

Shyam-Sunder, L. and Myers, S. C., (1999) Testing Static Trade-off against Pecking Order Models of Capital Structure, Journal of Financial Economics, 51(2), 219-244

Sinha, S. (1992) Inter-Industry Variation in Capital Structure in India, Indian Journal of Finance and Research, 2, 13-26

Spence, M. (1973) Job Market Signaling, Quarterly Journal of Economics. 87(3), 355–374

Stiglitz, L. (1998) The Role Of The Financial System In Development (Speech), Presentation At The Fourth Annual Bank Conference And Development In Latin America And The Carribean

Stulz, R. (1990) Managerial discretion and optimal financing policies. Journal of Financial Economics, 26, 3-27

Stulz, R. (2000) Financial Structure, Corporate Finance and Economic Growth. International Review of Finance, 43(1), 1-19

Sorin, V., Stulz, R., Lungi, P. and Serfeit, B. (2010) A Review Of The Capital Structure Theories, Working Paper Series, 4(5), 85-98

Titman, S. (1984) The Effect of Capital Structure on the Firm's Liquidation Decision. Journal of Financial Economics, 13, 137-151

Titman, S. and Wessels, R., (1988) The Determinants of Capital Structure, Journal of finance, 43, 1-19

Tomak, S. (2013) The Impact of Overconfidence on Capital Structure in Turkey, International Journal of Economics and Financial Issues, 3(2), 512-518

Wahab, R.A., Amin, M.S.M., Yusop, K. (2012), Determinants of Capital Structure of Malaysian Property Developers, Middle-East Journal of Scientific Research, 11(8), 1013-1021

Wahab, S.N.A., Ramli, N.A. (2014) The Determinants of Capital Structure: An Empirical Investigation of Malaysian Listed Government Linked Companies, International Journal of Economics and Financial Issues, 4(4), 930-945

Vergas, N., Cerqueira, A. and Brandão, E., (2015) The determinants of the capital structure of listed on stock market nonfinancial firms: Evidence for Portugal, School of Economics and Management, University of Porto, Portugal

Villamil, A.P., (n.d) The Modigliani and Miller Theorem, University of Illinois

Vigario, F. (2006) Managerial Finance, 3rd edition. Durban: LexisNexis.

Voulgaris, F., Asteriou, D. and Agiomirgianakis, G. (2004) Size and determinants of Capital Structure in the Greek Manufacturing Sector, International Review of Applied Economics, 8(2).

Wald, J.K., (1999) How Firm Characteristics Affect Capital Structure: An International Comparisons, Journal of Financial Research 22, 166-187

Yolanda, K. and Soekarno, S. (2012) Capital Structure Determinants of Indonesian Plantation Firms: Empirical Study on Indonesian Stock Exchange, 2nd International Conference on Business, Economics, Management and Behavioral Sciences

Zabri, S.M. (2012) The Determinants of Capital Structure among SMES in Malaysia, Proceedings International Conference of Technology Management, Business and Entrepreneurship

Zender, J. (2007) Optimal Financial Instruments, Journal of Finance, 46. 1645-63

Zimbabwe Stock Exchange, http://www.zse.co.zw/companies/ , Accessed 28 July 2017

APPENDICES

APPENDIX A: DATA SET

Listed banks

ID	YEAR	DER	PR	TN	SZ	GR	LQ	TXS	NDTS
1	2010	6.407453	-0.000767	0.161003	19.248951	0.262089	0.969938	1377997.83	0.005346
1	2011	6.759734	0.016413	0.138983	19.376328	0.119599	0.988391	1660730.06	0.006093
1	2012	5.946374	0.015184	0.148202	19.455739	0.076339	0.995045	1451440.93	0.006599
1	2013	5.941795	0.025638	0.134683	19.544982	0.085377	1.010950	1322166.20	0.007156
1	2014	4.941993	0.030630	0.139716	19.544982	-0.051078	1.034361	1546475.00	0.007065
1	2015	4.522445	0.020855	0.088811	19.516994	0.021592	1.112671	1286432.40	0.007551
1	2016	6.304619	0.031119	0.055721	19.981369	0.371473	1.094055	1272765.00	0.005145
2	2010	6.926105	0.068739	0.107596	19.347534	0.341146	1.022939	1366418.36	0.003835
2	2011	7.878739	0.068879	0.082277	19.777468	0.349448	1.034587	1427375.50	0.003632
2	2012	6.632183	0.095724	0.079042	19.924649	0.136863	1.062210	1458026.03	0.003912
2	2013	7.596664	0.076190	0.064092	19.167097	0.215295	1.130858	1564379.98	0.003517
2	2014	6.217075	0.083138	0.061934	19.236301	0.066864	1.089137	1428203.65	0.004470
2	2015	6.550967	0.068721	0.054265	18.628801	0.153977	1.090360	1555058.18	0.003666
2	2016	6.382622	0.061380	0.051528	18.458806	0.053796	1.097360	1589687.20	0.003523
3	2010	3.753449	-0.034289	0.212533	19.280440	0.143998	1.065974	1478200.53	0.011259
3	2011	3.697836	0.101751	0.208560	19.448844	0.154988	1.077453	1662936.35	0.011335
3	2012	4.533342	-0.001578	0.149962	19.786912	0.286853	1.096608	1551595.30	0.009769
3	2013	3.778000	0.082567	0.132601	19.948428	0.149146	1.127243	1481411.94	0.008891
3	2014	4.421507	0.000283	0.054513	19.983756	0.034712	1.159832	1695895.15	0.003421
3	2015	3.686102	0.094170	0.057112	19.011069	0.026943	1.199318	1669697.40	0.003562
3	2016	3.940919	0.078470	0.050300	19.229207	0.195985	1.191356	1306992.40	0.003409
4	2010	4.460565	0.039729	0.066877	18.448680	0.616558	1.142317	1377180.16	0.002893
4	2011	6.157724	0.086384	0.061049	18.935223	0.385252	1.091435	1423899.50	0.004520
4	2012	6.321216	0.088518	0.065686	19.238404	0.261534	1.082120	1407000.42	0.006317
4	2013	4.973175	0.034895	0.061900	19.374202	0.126981	1.126732	1541170.90	0.006536
4	2014	5.349926	0.052708	0.053226	19.471674	0.092872	1.123743	1403894.61	0.006639
4	2015	5.604780	0.068979	0.056396	19.626146	0.143132	1.111962	1504651.53	0.005065
5	2016	4.773068	0.053847	0.076541	19.586905	-0.040021	1.116932	1427386.06	0.00411

Non-listed banks

ID	YEAR	DER	PR	TN	SZ	GR	LQ	TXS	NDTS
1	2010	13.197030	0.099921	0.070922	15.609175	-0.035010	1.118325	120832.88	0.004076
1	2011	14.361868	0.056318	0.072388	16.032961	0.345436	1.036696	77812.22	0.003486
1	2012	10.862975	0.068276	0.059905	16.418775	0.320103	1.150343	255593.16	0.003996
1	2013	9.889911	0.074285	0.057031	16.574485	0.144193	1.174463	284735.62	0.004699
1	2014	16.585790	0.042152	0.051707	16.679159	0.099382	1.145990	106155.36	0.004625
1	2015	22.498534	0.096322	0.101111	16.220546	-0.581879	0.952061	111338.64	0.008508
1	2016	10.840148	0.123076	0.072484	16.440243	0.197238	1.098365	363888.75	0.005723
2	2010	8.825809	0.031062	0.023161	18.890161	0.240935	1.087518	787886.10	0.003697
2	2011	8.166793	0.037411	0.019577	19.012075	0.114776	1.099182	596418.90	0.003283
2	2012	5.476986	0.063178	0.108852	19.004389	-0.007715	1.157045	1216902.23	0.002656
2	2013	4.667002	0.058571	0.019391	19.004389	0.002347	1.187768	1218069.93	0.004776
2	2014	4.103132	0.063223	0.019669	19.056920	0.048944	1.210131	1183545.33	0.003524
2	2015	4.694694	0.053162	0.019389	19.312205	0.225304	1.183433	1175880.86	0.003488
2	2016	5.145219	0.029910	0.020076	19.515607	0.184050	1.162961	419113.94	0.002810
3	2010	2.539925	0.090944	0.280052	17.994613	0.539286	1.003400	813049.23	0.016260
3	2011	3.944643	0.077601	0.195998	18.473201	0.380342	1.007824	1076258.21	0.010408
3	2012	3.434533	0.055842	0.252830	19.100513	0.465975	0.964716	2146672.56	0.009502
3	2013	2.697472	0.046843	0.247660	18.945499	-0.167674	1.031245	2221308.32	0.008811
3	2014	2.749343	-0.006679	0.568825	18.887279	-0.059949	0.588004	1582513.44	0.009004
3	2015	1.986916	0.026703	0.753784	18.877472	-0.009855	0.370135	1039470.74	0.006776
3	2016	2.593762	0.026013	0.475354	18.934980	0.055886	0.726918	891438.75	0.006329
4	2010	12.500707	0.021590	0.022238	13.154912	0.154661	1.057315	105630.00	0.000637
4	2011	13.541067	0.022282	0.020481	13.292420	0.128473	1.053030	1019313.50	0.000621
4	2012	12.899630	0.022017	0.021807	13.355391	0.061029	1.055182	1266870.80	0.000643
4	2013	13.569584	0.018532	0.019232	13.421816	0.064267	1.054256	822648.60	0.000642
4	2014	14.627326	0.014073	0.018148	13.495187	0.070744	1.049419	702169.40	0.000598
4	2015	12.283850	0.005750	0.019048	13.369978	-0.133385	1.061341	1145320.00	0.000682
4	2016	12.372179	0.008698	0.011237	13.379625	0.009601	1.059249	1004601.60	0.000700
5	2010	11.444827	0.037044	0.066144	12.736789	0.407738	1.015452	133385.00	0.004855
5	2011	9.460924	0.049003	0.068837	12.797752	0.059142	1.029585	140852.50	0.007036
5	2012	7.514324	0.065985	0.065676	12.887365	0.085715	1.058663	108922.50	0.007035
5	2013	6.190001	0.065682	0.057847	13.071131	0.167870	1.094359	184370.00	0.005854
5	2014	5.868809	0.032628	0.049403	13.237396	0.153178	1.112571	218617.50	0.004863
5	2015	5.759990	0.042436	0.049385	13.296216	0.057123	1.115653	193897.50	0.004906
5	2016	6.706268	0.036267	0.085865	13.647712	0.296365	1.050445	151667.50	0.003826

Source: Financial statements of respective companies

Measurement Units: TXS in millions and other variables in units

DER - Debt to Equity Ratio, PR – Profitability, TN – Tangibility, SZ – Size, GR – Growth, LQ – Liquidity, TXS - Tax-Shields, NDTS – Non-debt Tax-Shields

APPENDIX B: REGRESSION RESULTS

Listed banks

```
  Source |       SS        df       MS              Number of obs =      28
---------+------------------------------             F(  7,    20) =   18.89
   Model | 35.2565803    7  5.03665432             Prob > F      =  0.0000
Residual | 5.33179684   20  .266589842             R-squared     =  0.8686
---------+------------------------------             Adj R-squared =  0.8227
   Total | 40.5883771   27  1.50327323             Root MSE      =  .51632


--------------------------------------------------------------------------------
     DER |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
---------+----------------------------------------------------------------------
      PR |   1.561983   3.336303     3.47   0.005    -5.397424    8.52139
      TN | -18.13808    4.540723    -3.99   0.001   -27.60986   -8.666298
      SZ |   1.115409   .3835262     5.38   0.002    2.0588297    .2896355
      GR |   1.734343   .7250407     2.39   0.027    .2219341    3.246751
      LQ | -21.01157    2.400238    -8.75   0.000   -26.01838   -16.00476
     TXS |   4.53e-08   1.68e-08     2.70   0.014    1.03e-08    8.04e-08
    NDTS |  23.10645    79.86411     0.29   0.775   -143.4872    189.7001
   _cons |    27.083    3.104129     8.72   0.000    20.6079     33.5581
--------------------------------------------------------------------------------
```

Non-listed banks

```
  Source |       SS        df       MS              Number of obs =      35
---------+------------------------------             F(  7,    27) =    8.58
   Model | 559.936603    7  79.9909433             Prob > F      =  0.0000
Residual | 251.583088   27  9.31789215             R-squared     =  0.6900
---------+------------------------------             Adj R-squared =  0.6096
   Total | 811.519691   34  23.8682262             Root MSE      =  3.0525


--------------------------------------------------------------------------------
     DER |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
---------+----------------------------------------------------------------------
      PR |  53.86762    28.65038     2.88   0.041    -4.918101    12.6534
      TN | -49.71121    13.97987    -3.56   0.001   -78.39553   -21.0269
      SZ |   .0107713   .3100304     0.03   0.973   -.6253586    .6469012
      GR |  -5.29716    2.828087    -3.87   0.072   -11.09992    .5055946
      LQ |   -42.592    12.73959    -3.34   0.002   -68.73148   -16.45253
     TXS |  -9.91e-07   1.22e-06    -0.81   0.423   -3.49e-06    1.51e-06
    NDTS | -170.4754    259.4326    -2.66   0.047   -702.7872    361.8364
   _cons |  58.08749    12.08425     4.81   0.000    33.29266    82.88231
--------------------------------------------------------------------------------
```

APPENDIX C: NORMALITY RESULTS

Listed banks

```
sktest resid

                  Skewness/Kurtosis tests for Normality
                                              ------- joint ------
    Variable |    Obs    Pr(Skewness)   Pr(Kurtosis)  adj chi2(2)    Prob>chi2
-------------+---------------------------------------------------------------
       resid |     28       0.0265         0.092         4.12         0.1103
```

Non-listed banks

```
sktest resid

                  Skewness/Kurtosis tests for Normality
                                              ------- joint ------
    Variable |    Obs    Pr(Skewness)   Pr(Kurtosis)  adj chi2(2)    Prob>chi2
-------------+---------------------------------------------------------------
       resid |     35       0.2416         0.0718        6.69         0.1053
```

APPENDIX D: HETEROSCEDASTICITY RESULTS

Listed banks

```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: fitted values of DER

        chi2(1)      =      0.36
        Prob > chi2  =    0.1531
```

Non-listed banks

```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: fitted values of DER

        chi2(1)      =      0.63
        Prob > chi2  =    0.4203
```

APPENDIX E: MULTICOLLENEARITY RESULTS

Listed banks

```
. pwcorr PR TN SZ GR LQ TXS NDTS

             |       PR        TN        SZ        GR        LQ       TXS      NDTS
-------------+---------------------------------------------------------------------
          PR |   1.0000
          TN |  -0.4376    1.0000
          SZ |   0.1383   -0.0506    1.0000
          GR |   0.0711   -0.0805   -0.1192    1.0000
          LQ |   0.3323   -0.5794    0.0534   -0.0396    1.0000
         TXS |   0.4219   -0.3958    0.1279   -0.1537    0.1355    1.0000
        NDTS |  -0.3464    0.7932   -0.0843   -0.1830   -0.2383   -0.4291    1.0000
```

Non-listed banks

```
. pwcorr PR TN SZ GR LQ TXS NDTS

             |       PR        TN        SZ        GR        LQ       TXS      NDTS
-------------+---------------------------------------------------------------------
          PR |   1.0000
          TN |  -0.1301    1.0000
          SZ |   0.2094    0.4327    1.0000
          GR |   0.1000   -0.0614    0.0426    1.0000
          LQ |   0.3140   -0.7224   -0.1809    0.1638    1.0000
         TXS |  -0.2621    0.3757    0.5093   -0.0728   -0.2513    1.0000
        NDTS |   0.4727    0.5416    0.3929    0.1892   -0.3422    0.1627    1.0000
```

APPENDIX F: DESCRIPTIVE RESULTS

Listed banks

```
summarize DER PR TN SZ GR LQ TXS NDTS

    Variable |        Obs        Mean    Std. Dev.         Min         Max
-------------+--------------------------------------------------------------
         DER |         28    5.516442      1.22608    3.686102    7.878739
          PR |         28    .0502955     .0357006   -.0342892    .1017509
          TN |         28    .0955395     .0487372    .0503004     .212533
          SZ |         28    19.66357     1.220208     14.6288    21.45881
          GR |         28    .1707755     .1476556   -.0510783    .6165576
-------------+--------------------------------------------------------------
          LQ |         28    1.087353     .0574975    .9699383    1.199318
         TXS |         28     5250324      7236804       72765     2.39e+07
        NDTS |         28    .0056871     .0023842    .0028932    .0113354
```

Non-listed banks

```
summarize DER PR TN SZ GR LQ TXS NDTS

    Variable |        Obs        Mean    Std. Dev.         Min         Max
-------------+--------------------------------------------------------------
         DER |         35    8.685771     4.885512    1.986916    22.49853
          PR |         35    .0473178     .0289209   -.0066789    .1230758
          TN |         35    .1161576     .1687978    .0112372    .7537838
          SZ |         35    16.11795     2.608884    12.73679    19.51561
          GR |         35    .1167038     .2022922   -.5818787    .5392863
-------------+--------------------------------------------------------------
          LQ |         35    1.037801     .1663297     .370135    1.210131
         TXS |         35    711061.5     584256.2    77812.22     2221308
        NDTS |         35    .0048382     .0033897    .0005979    .0162598
```

APPENDIX G: MODEL SEPCIFICATION RESULTS

Listed banks

```
linktest
```

Source	SS	df	MS
Model	35.2893258	2	17.6446629
Residual	5.29905127	25	.211962051
Total	40.5883771	27	1.50327323

Number of obs = 28
$F(2, 25) = 83.24$
Prob > F = 0.0000
R-squared = 0.8694
Adj R-squared = 0.8590
Root MSE = .46039

DER	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
_hat	1.323086	.8256442	1.60	0.122	-.3773597	3.023532
_hatsq	-.0298698	.0759948	-0.39	0.698	-.186384	.1266443
_cons	-.8357028	2.170534	-0.39	0.703	-5.306001	3.634596

Non-listed banks

```
linktest
```

Source	SS	df	MS
Model	583.552349	2	291.776175
Residual	227.967342	32	7.12397944
Total	811.519691	34	23.8682262

Number of obs = 35
$F(2, 32) = 40.96$
Prob > F = 0.0000
R-squared = 0.7191
Adj R-squared = 0.7015
Root MSE = 2.6691

DER	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
_hat	.4260018	.3348323	1.27	0.212	-.2560293	1.108033
_hatsq	.0345136	.0189562	1.82	0.078	-.0040989	.073126
_cons	1.829668	1.474197	1.24	0.224	-1.173173	4.832508