

Determining factors affecting the financing decisions by Zimbabwe Banks

F Magezi

 0000-0001-7185-9574

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Supervisor:

Prof P Lucouw

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Student number: 28235975

ABSTRACT

This study aimed to determine the factors affecting the financing decisions made by the banks listed on the Zimbabwe Shares Exchange. There are numerous studies on capital structure determinants of non-financial firms in the developed countries but there are not many studies on what determines the capital structure of financial institutions, such as banks, in developing nations. Therefore, this study aimed to fill the gap in the scholarship of the financial decisions of listed banks in a developing country- with particular emphasis to Zimbabwe. Five dependant variables (namely, profitability, growth, size, tangibility, and volatility of assets) were selected and regressed against leverage (debt to equity). Five banks listed on the Zimbabwe Shares Exchange (ZSE) were selected for the study and their performance was compared to the top five international banks', as well as five defaulted banks' in Zimbabwe performance. A combination of panel data analysis and descriptive statistics were employed to examine the relationship between the firm capital structure and the explanatory variables. Correlation analysis was also carried out, as well as financial statement analysis. The analysis found the regression model to be insignificant with the adjusted R squared of -0.038%. There were no explanatory variables that were significant, which is in contrast with other research done. The research also found a negative relationship with profitability, which is in agreement with findings from this research. The average (mean) for leverage of Zimbabwean banks was found to be 88% and this indicates that the banks are financed (leveraged) with debt at approximately eight times greater than equity option. That means the banks' financing decision is inclining to deposit mobilization than to the equity financing. Through the empirical study, it was also noted that the Zimbabwean commercial banks listed on the ZSE follow the pecking order theory more than the agency and trade-off theories of capital structure.

Key words: capital structure, financial management, trade-off theory, pecking order theory, agency theory

OPSOMMING

Hierdie navorsingswerkstuk poog om die faktore te bepaal wat die finansieringsbesluite van banke wat op die Zimbabwiese Aandelebeurs genoteer is, beïnvloed. Daar is verskeie studies wat handel oor kapitaalstruktuurdeterminante van nie-finansiële firmas in ontwikkelde lande, maar daar bestaan weinig studies rakende moontlike determinante wat die kapitaalstruktuur van finansiële instellings, soos banke, in ontwikkelende lande bepaal. Hierdie studie poog dus om die gaping in navorsing te vul rakende finansiële besluite van genoteerde banke in 'n ontwikkelende land - met spesifieke verwysing na Zimbabwe. Vyf afhanklike veranderlikes (naamlik winsgewendheid, groei, grootte, tasbaarheid en volatiliteit van bates) is gekies en teruggekaats ten opsigte van die hefboomverhouding (skuld tot ekwiteit). Vyf banke wat op die Zimbabwiese Aandelebeurs (ZSE) genoteer is, is gekies vir hierdie studie en hulle prestasies is vergelyk met die top vyf internasionale banke asook vyf banke in Zimbabwe wat nie meer hulle verpligtinge kon nakom nie. 'n Kombinasie van paneeldata-analise en deskriptiewe statistiek is gebruik om die verhouding tussen firmakapitaalstruktuur en die genoemde veranderlikes te ondersoek. 'n Korrelasie-analise, sowel as 'n finansiële staat ontleding is gedoen. Die ontleding het bevind dat die regressiemodel onbeduidend is met 'n aangepaste R-vierkant van -0.038%. Daar is geen verduidelikende veranderlikes gevind wat beduidend is in vergelyking met ander studies wat gedoen is nie. 'n Negatiewe verhouding is ook vasgestel met betrekking tot winsgewendheid, wat ooreenstem met bevindings van vorige navorsing. Die gemiddelde hefboomverhouding van Zimbabwiese banke is vasgestel op 88% wat daarop dui dat die banke gefinansier word met skuld teen ongeveer agt maal groter as die ekwiteit opsie. Dit beteken dat die banke se finansieringsbesluite neig na deposito mobilisering eerder as aandele finansiering. Deur hierdie empiriese studie is ook bevind dat Zimbabwiese kommersiële banke wat op die ZSE genoteer is, die rangorde teorie navolg eerder as die agentskap- en uitruil teorieë van die kapitaalstruktuur

Sleutelwoorde: kapitalstruktuur, finansiële bestuur, afhandelingsteorie, pikkende orde teorie, agentskap teorie

DECLARATION

I, Faith Magezi, hereby affirm that the research dissertation titled “Determining factors affecting the financing decisions by Zimbabwe banks” presented by me for the award of the degree of MCom in Accountancy in the School of Accounting Sciences in the faculty of Economic Sciences and IT at the North-West University (Vaal Triangle Campus), is my original work and it has not been submitted for the award of any other degree, of any other university or institution.

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CHAPTER ONE

INTRODUCTORY CHAPTER

1.1 Introduction

Financial management is regarded as a critical skill in business management. According to the career experiences of Masters of Business Administration (MBA) graduates, after five years since their graduation, they ranked financial management as the number one discipline that business managers should possess for effective business management in South Africa (Jonker, 1997:124-125). Financial management is concerned with the identification of strategies that are capable of maximising an organisation's market value. Firer, Ross, Westerfield and Jordan (2004:10) argue that the goal of financial management is to maximise the current value per share of the existing shares.

Corporate financial decisions are influenced by factors that include business risk of the firm's operations; firm's tax exposure; financial flexibility of the firm to raise capital in bad times; management styles i.e. whether it is aggressive or conservative; growth rate; and market conditions (Kafi, 2014; Investopedia, 2014). These factors indicate that the business environment is critical in making finance decisions.

The Zimbabwean business environment has been undergoing some challenges for the past two decades. The challenges reached a peak during the hyperinflationary period of 2007/2008. The Institute of Chartered Accountants of Zimbabwe (ICAZ) (2011:5-8) outlined the situation as follows: "...the period 1998 – 2008 economic crises affected all sectors. The macroeconomic environment was unstable. This included inability to borrow from domestic and international debt markets leading to excessive money supply to finance the budget deficit; worsening social conditions; high inflation rates of 60% in 1999 and 500 billion % in 2008. The crises situation stopped with the adoption of the US dollar as the currency 2009. The period after dollarization was characterised by stability; positive GDP of 5.7% in 2009; marked decline in inflation to single digits 2009— 7.7%, Dec 2010 over 3.24%; recovery in capacity utilisation – 47 - 50%; and increased availability of basic

goods and services; increased confidence of market participants accompanied by longer term planning”.

The focus of this research is on the banking sector, as a change in the economic environment affects the banking sector directly. Mhlanga and Sibanda (2013:615-616), observe that there was an influx of banking institutions during the period 1991 to 2000 with twelve commercial banks being established during this period.

“This represents a 240% growth from the initial establishment of five commercial banks in 1990. However, despite this phenomenal growth, two newly formed banks (by then) collapsed between 1998 and 1999. The number of banking institutions however, declined in 2005 after the closure of five institutions during 2004-2005. Only two banking institutions were established after 2002, including the commercialization of a state-owned post office savings institution in 2005. Non-registration of new banks in 2006-2007 was due to a difficult operating environment in the banking industry which was further exacerbated by the hyper inflationary environment” (Mhlanga & Sibanda 2013:616).

Mhlanga and Sibanda (2013:616) further add that, “...the period between 1990 and 2000 witnessed rampant growth in the banking industry amid inflationary environment. In contrast, the period between 2001 and 2008 unveiled a host of challenges that led to the near collapse of the banking industry. Hyperinflation was a major threat to the banking industry as capital and public savings and investments got eroded rapidly”.

The following corporate financial strategies used by Zimbabwean banks during this hyperinflationary situation are noted as follows: use of more venture and corporate funding at start-up phase; listing on a recognised exchange to access additional external capital; embarking on rights issues where feasible; non-payment of dividends; and use of surplus funds to consolidate the firm’s operations through mergers and acquisitions. Chikoko and Le Roux (2012:11795) add that from 2000 to 2004, the main source of funds for Zimbabwean banks was own funds and offshore lines of credit. From 2005 to 2007, the source of funds was from the productive sector facility of the Reserve Bank of Zimbabwe. Banks used own funds to lend to high quality borrowers. No lending activities took place in 2008.

The Institute of Chartered Accountants of Zimbabwe (ICAZ) (2011:6-16) aptly summarised the situation in the banking sector, before dollarization, as chaotic. There were liquidity and solvency problems; inadequate risk management systems; poor corporate governance; diversion from core business to speculative activities; rapid expansion; high levels of non-performing loans; and unsustainable earnings. As a result, there was loss of confidence in the banking sector; a decline in deposits; and some banks being placed under curatorship.

Even after dollarization, the Reserve Bank of Zimbabwe (RBZ) was still not performing its role of lender of last resort, exchange rates were being determined externally, and there was use of cash budget. RBZ's inability to control interest rates and money supply led to the inability to attract funding; inadequate lines of credit to meet demand; and increased banking system vulnerabilities.

The above situation in the Zimbabwean banking sector is in clear divergence to the normal banking environment. According to the Institute of Chartered Accountants of Zimbabwe (ICAZ) (2011:16), a normal banking environment is characterised by limited use of cash; transactions by cards; high volumes of transactions going through the formal sector; undoubted transparency of developments in the sector; rise in deposits leading to demonstrable financial deepening; effective deposit protection mechanism; increase in capital flows reflecting confidence in the market; effective credit bureau; thin interest rate spreads; increase in volumes of loans, especially to the productive sectors; liquidity; and confidence and trust in the banking system.

With socio-political and economic environment factors being significant in determining financial decision making (capital raising), the question on the nature of financial decisions made by Zimbabwean banks arises. Mhlanga and Sibanda (2013:609) conclude that for the period up to 2008, Zimbabwean banks raised capital through activities like venture capital funding, rights issues, and debt finance. However, dividend policy amongst most banking institutions showed a significant decline towards 2007 as banks sought to retain funds to sustain operations. Among other things, this shift likely affected capital raising from the public for banks listed on the Zimbabwe Shares Exchange. Chikoko and Le Roux's (2012) observations on banks' liquidity, was that

during the period leading to 2008, there were general concerns of liquidity risk. Chikoko and Le Roux (2012:11795) state that, "The sources of funds for banks were deposits from new clients, retention of existing clients, interbank borrowing, shareholders, offshore lines of credit and the Reserve Bank of Zimbabwe's lender of the last resort function. The products offered ranged from money market, equity market, foreign exchange market and derivatives market". While the period leading to 2008 within the banking sector is fairly understood, the period after dollarization (starting 2009) is not well understood or documented. There are many financial activities performed by firms such as banks that require investigation.

Chikoko and Le Roux (2012:11787) after their comprehensive study, recommend that Zimbabwean commercial banks should take proactive management measures and long-term plans for operations beyond the current challenges.

In summary, the Zimbabwean banking industry has gone through a lot of changes, which determined its financing decisions. However, to date, not many studies have been done around the financing decisions of banks in Zimbabwe after dollarization, that is, from 2009. A lot of empirical studies have been conducted on the banking sectors in the developed countries but little has been done in developing countries, particularly Zimbabwe. Therefore, this gap justifies the need for this research.

1.2 Problem statement

As evidenced from the above discussion, the capital structure determinants for the Zimbabwean banking sector after dollarization are under researched. Very little is known about how the banks determined their capital structure after 2008. Therefore, this study seeks to contribute to literature by examining the financing decisions of banks listed on the Zimbabwe Shares Exchange (ZSE) post 2008, thereby contributing to closing this knowledge gap. The research will attempt to achieve this by determining the types of financing available to banks, taking into account regulations that govern the Zimbabwean sector. It is assumed that financing decisions for financial firms will be different from those of non-financial firms due to the various regulations governing the banks, and these regulations vary from country to country.

Gocmen and Sahin (2014: 56) state that, "...although there are numerous studies on capital structure determinants of non-financial firms, there are not many studies on what determines the capital structure of financial institutions such as banks. Banks are the most heavily regulated financial institutions in the world. The question of what determines banks' capital structure still remains under researched".

There is limited research and poor understanding of the capital structure of firms in Africa (Mohohlo, 2013:4; Gwatidzo and Ojah, 2009). This situation is more acute in the Zimbabwean banking situation. The corporate financial strategies used by banking institutions after dollarization are poorly understood. The current research has focused on banks' liquidity after dollarization. Thus, it will be of utmost importance for the research to do an analysis of the factors that influenced the financing options of the Zimbabwean banks from the period 2010 to 2014 in light of the prevailing challenges.

Anarfo (2015:629) states that, "the way a firm is being financed is of great importance to both the managers of the firm and the providers of capital. This is due to the fact that, a wrong interaction of equity and debt financing employed can affect the performance and survival of the firm". Therefore, the research will also seek to evaluate the impact of these financing decisions on the banking sector.

Teixeira, Silva, Fernandes and Alves (2013:2) allude to the fact that the financing decisions for banks may be influenced by regulation. Therefore, it is not entirely up to the decision makers, as the banks have to comply with capital requirements resulting from Basel I, II and, more recently, from Basel III. Consequently, they state that it is important to study the determinants of banks' capital structure. In particular, it is important to investigate whether or not banks' capital structure is fully determined by regulation. If not, *which bank specific factors are really important in determining banks' capital structure?*

The research conducted in developing countries, e.g. by Booth, Aivazian, Demirguc-Kunt, & Maksimovic (2001) and Bas, Muradoglu & Phylaktis (2010), involved a cross-sectional analysis of 10 and 25 developing countries respectively. Both studies exclude financial firms because of their complexity. The study by Booth *et al.* (2001) includes Zimbabwean firms but the study by Bas *et al.* (2010) does not. Therefore, this study aims to fill the gap

in the scholarship of the financial decisions of listed banks in Zimbabwe for the period from 1990 to date.

1.3 Objectives of the study

The following objectives have been formulated for the study in order to achieve the purpose of the study.

1.3.1 Primary objectives

The primary objective of this study is to determine the factors affecting the financing decisions made by the banks listed on the Zimbabwe Shares Exchange from the period 2010 to 2014.

This study fills the stated gap in literature by identifying the factors that determine capital structure decisions and providing additional facts to the theories of capital structure relevancy evidencing banks listed on the Zimbabwe Shares Exchange. The findings of the study will benefit many stakeholders, including CEOs and finance managers, who will consider the findings of this study to make appropriate capital structure decisions that best fit their respective banks' needs.

1.3.2 Secondary objectives

Financing decisions, also known as capital structure decisions, are about determining the proper amount of funds to employ in a firm (debt and/or equity) and they are one of the most important decisions that a Finance Manager should make in order to ensure that shareholders' wealth is maximised. The crucial questions to ask includes: *At what point is the optimal capital structure reached and what are the determinants of such optimal capital structure? And, how do firms determine capital structure?* Different theories (pecking order theory, trade-off theory, and agency theory) address these questions from a different point of view. Therefore, it can be noted that financing decisions are factors, which affect and include but are not limited to, type of firm (financial or non-financial); country specific variables; and regulatory environment.

Therefore, in order to achieve the primary objective, the following theoretical and empirical objectives are formulated for the study:

- Theoretical objectives:
 - i. To determine the types of financing available for banks taking into account the regulations governing the Zimbabwean banking sector.
 - ii. To determine the factors influencing the financing options of banks in light of the prevailing challenges in the Zimbabwean banking sector.
 - iii. To evaluate the impact of the financing decisions made by banks within the Zimbabwean banking climate.

- Empirical objective
 - i. To validate if capital structure decisions that are made by the Zimbabwean banks listed on the ZSE provide empirical support for existing theories, namely the trade-off, pecking order, and agency theory. In addition, 6 (six) bank relevant firm-specific explanatory variables such as profitability, tangibility, size of the firm, growth, age of the firm, and volatility of assets were selected in order to determine whether or not they influence financing decisions.

The trade-off theory of capital structure refers to the idea that a firm chooses how much debt or equity finance to use by balancing the costs and benefits, whilst the pecking order theory suggests that the cost of financing increases with asymmetric information. The agency theory explains the relationship between principals and agents in business.

1.4 Literature review

Ogbulu and Emeni (2012: 252) state that, "...the Modigliani and Miller (MM) theory, proposed by Modigliani and Miller (1958 and 1963), forms the basis for modern thinking on capital structure. In their seminal articles, Modigliani and Miller (1958 and 1963) demonstrate that, in a frictionless world, financial leverage is unrelated to firm value, but in a world with tax-deductible interest payments, firm value and capital structure are positively related".

Miller (1977) added personal taxes to the analysis, and demonstrated that optimal debt usage occurs on a macro level, but it does not exist at the firm level. Interest deductibility at the firm level is offset at the investor level. In addition, Modigliani and Miller (1963) made two propositions under a perfect capital market condition. Their first proposition is that the value of a firm is independent of its capital structure. Their second proposition states that the cost of equity for a leveraged firm is equal to the cost of equity for an unleveraged firm plus an added premium for financial risk.

From the MM, their theory developed, many theories on capital structure. A review will be conducted on each of the following theories:

- Trade-Off
- Pecking Order
- Agency theory

This study employed the narrative and case study approaches of qualitative research to conduct an extensive literature review on the banking situation of Zimbabwe, focusing particularly on financing to determine the effect of such decisions on the performance of the firms. The review focuses on academic articles; sector reports by the Institute of Bankers of Zimbabwe; and technical and periodic reviews of the banking sector by regulating institutions, namely: Ministry of Finance, Reserve Bank of Zimbabwe, International Monetary Fund (IMF), World Bank, and other relevant country reviews.

The literature review benefits in generating a framework for the study by identifying the important issues in capital structure and its theories that are relevant to the study. Therefore, the literature review chapter is divided into several areas: general overview; definition of capital structure; theories of capital structure; theoretical determinants of capital structure; bank capital structure; and an overview of commercial banks in Zimbabwe. In this chapter, a review of related empirical literature is also presented.

1.5 Research design and methodology

A mixed-method approach was employed for the study, i.e. both quantitative and qualitative research approaches were used. Phase one of the study focused on a literature review, while phase two comprised an empirical study.

1.5.1 Empirical study

The empirical portion of this study comprises the following methodology dimensions:

Target population

The research was conducted on banks registered in Zimbabwe since 1990 up to December, 2014. The study focused on both the surviving and collapsed banks. The data that was used for the analysis was largely financial data.

Sampling frame

The sampling frame comprises the listed banks prior to 1990, including five banks that collapsed since 1990. The listed banks are: Barclays Bank of Zimbabwe Limited; CBZ Holdings Limited; FBC Holding Limited; NMBZ Holdings Limited; and ZB Financial Holdings Limited. The five banks that went bankrupt were selected as the five biggest banks in terms of total assets.

Sample method

The non-probability sampling technique of convenient sampling was used. This is because the study focused on the banks listed on the Zimbabwe Shares Exchange. This qualitative study utilised documentary analysis techniques.

Sample size

Five banks listed on the ZSE as at December 2014 were the sample size, including five banks that collapsed, which were selected based on total assets.

Measuring instrument and data collection method

Data was collected through documents review. The banks' public documents available on the Zimbabwe Shares Exchange from 2010 to 2014 were analysed. These include the statements of financial position; statements of comprehensive income; statements of cash flows; and other documents relevant to the subject matter. Data was gathered from a public source, namely, the Zimbabwe Shares Exchange. Additional data that could not be accessed publicly was requested through the firms' (banks') leadership.

Data analysis

Ratio analyses were done on the dependant and explanatory variables. The dependant variable, leverage, was calculated as the long-term liabilities divided by the sum of long-term liabilities and book value of equity. According to previous research by Frank and Goyal (2009), the explanatory variables, which are the determinants of firm-specific financing choices are; firm size (SIZE); profitability (PRO); asset tangibility (TAN); growth opportunity (GRO); and business risk or volatility (VOL). The documentary data was analysed using an interpretive analysis approach.

Statistical analysis

A combination of panel (data) analysis and descriptive statistics was employed to examine the relationship between the firm capital structure and the explanatory variables. According to Baltagi (2005), panel data refers to data sets consisting of multiple observations on each sampling unit. The data set is generated by pooling time series

observations across a variety of cross sectional units such as countries or firms. In this case, the units were the banks under review.

Investopedia (2014) defines descriptive statistics as, “a set of brief descriptive coefficients that summarizes a given data set, which can either be a representation of the entire population or a sample”. The measures used to describe the data set are measures of central tendency and variability. These include the mean, mode, median, and standard deviation.

1.6 Ethical considerations

The study was largely based on the analysis of public available information. No humans formed part of the research. Therefore, human ethical risks were regarded as low.

1.7 Chapter classification

This study comprises of the following chapters:

Chapter 1 Introduction and background to the study: Gives a brief introduction to the research subject, and outlines the research background. Identifies the problems and results from preceding studies. Also, included in this section are the problem statement and research objectives.

Chapter 2 Literature review: Provides evidence of the review of related empirical studies. It is divided into several areas as follows: general overview, definition, theories, theoretical determinants, empirical evidence, features of capital structure, bank capital structure, and an overview of banking in Zimbabwe as evidenced by banks listed on the Zimbabwe Shares Exchange.

Chapter 3 Research design and methodology: Points out the methodology of the study. Included in the chapter are the study design, sampling design, data source and collection, method of data analysis, and model specification. Definitions and measurements of the variables are well-defined

Chapter 4 Presentation of findings: An analysis of the collected secondary data and the results are presented. Determinants of capital structure in the selected banks are also explained.

Chapter 5 Conclusions and recommendations: A summary of the outcomes of the study are tabled. Conclusions and recommendations based on the findings of the study are made.

1.8 Conclusion

This chapter sought to introduce the aim of the research to determine the factors affecting the financing decisions made by the banks listed on the Zimbabwe Shares Exchange from the period 2010 to 2014. It also articulated the problem statement. The objectives, primary and secondary objectives were explained. Chapter 2 offers a detailed literature review that is aimed at addressing the theoretical objectives of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter critically reviews previous literature on capital structure, and its theories, that are pertinent to the study. The aim of the literature review is to establish a theoretical framework for capital structure by defining the key terms identified in Chapter 1; identifying the models or theories that relate to capital structure; and defining the gap the study intends to fill. The literature is classified into categories that help to shed light on the subject of Capital Structure. The literature review provides context for the research, justifies the research, as well as enables the researcher to learn from previous theories in order to locate and build on the existing body of knowledge, whilst also achieving the secondary research objectives. In order to put the research into perspective and, in turn, address objectives, financial management is defined and theories and determinants of capital structure are discussed in detail. In addition, empirical evidence in developed, developing countries, and Zimbabwe are outlined. Bank regulatory requirements such as Basel, are also briefly discussed. The first two objectives are also being discussed in this chapter. The third objective will be discussed in Chapter 4.

2.2 Definition of financial management

Capital structure decisions, or financing decisions, are part of the financial management of an organisation. This study will, therefore, start by briefly defining financial management to show the relationship between capital structure decisions, which is the focus of this study. A detailed discussion on capital structure will follow.

Van Horne and Wachowicz (2008:2) usefully define financial management as, “concerned with the acquisition, financing and management of assets with some overall goal in mind. The decision function of financial management can be broken down into three major areas, namely: the investment, financing and asset management”. Fabozzi and Peterson (2003:3) add that financial management, as an area of finance, “is primarily concerned

with financial decision making within a business entity". They give examples of financial management decisions as, "maintaining cash balances, extending credit, acquiring other firms, borrowing from banks, and issuing shares and bonds". Weston and Brigham (2003:3) define financial management as, " an area of financial decision making, harmonising individual motives, and enterprise goals".

From the above definitions, it is evident that financial management is directly associated with top management tasked with decision making. It involves the planning, directing, monitoring, organising and controlling of the monetary resources of an organisation. This entails careful consideration on how to expend the monetary resources of the entity in a way that maximises profits and aligns with the objectives of the entity. This function of financial management is very important as it is the key to successful business operations. Without proper administration, there will be no growth and expansion of the organisation. Financial management is also important because it ensures the smooth running of the business, business promotion, as well as helping top management in the decision-making process through aspects such as ratio analyses, variance analyses, and budgets.

There are three (3) major financial management decisions that should be highlighted from the above and from other literature on financial management. These are: (1) the investment decision; (2) the financing decision; and (3) the dividend decision. These decisions will be discussed in detail below.

2.2.1 The investment decision

The investment decision deals with the decision relating to the selection of assets and the acquisition thereof. The investment decision deals with the asset side of the balance sheet. The investment decision is made by top management by performing fundamental analysis. According to Business Jargon (2016), investment decision relates to the decision made by top management with respect to the amount of funds to be deployed in the investment opportunities. Put simply, it is about selecting the type of assets in which the funds will be invested by the firm. The assets fall into two categories, namely; long term and short term. Investment decision is also concerned with capital budgeting. Capital budgeting relates to the investment decision for long term assets, whereas the investment

in short term or current assets is called working capital management. The investment decision framework is reflected diagrammatically as indicated below.

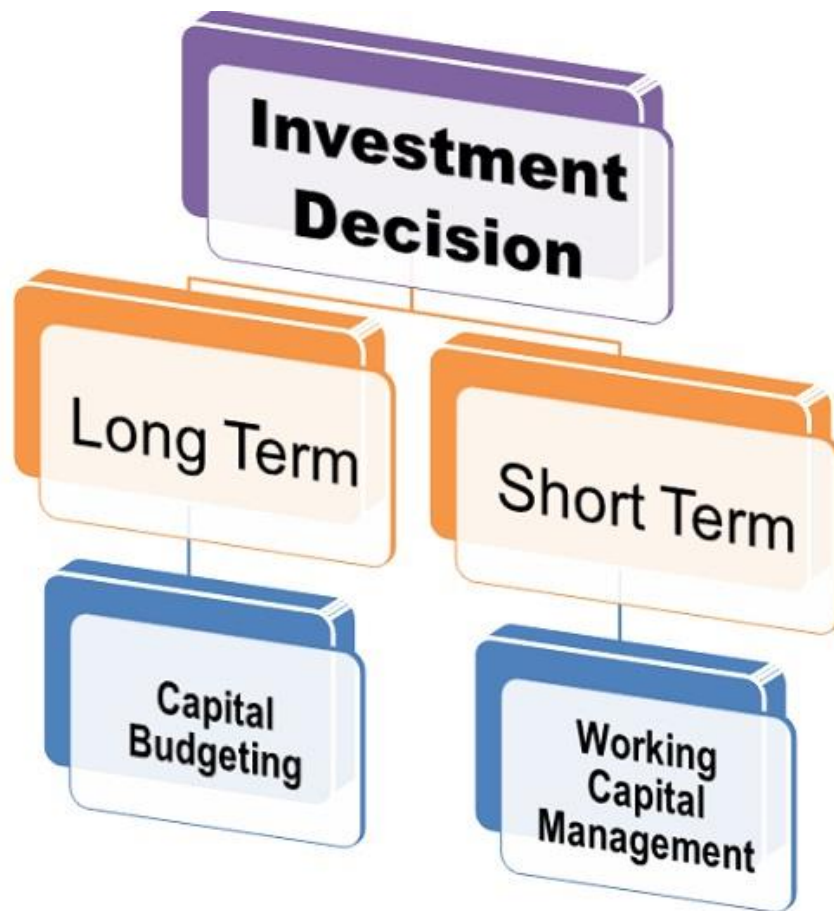


Figure 1: Investment decision in summary (Business Jargon, 2016)

According to Professional-edu.blogspot in an article titled *Professional Management Education* (2016), investment decisions require special attention for a number of reasons, which include:

- i. they influence the firm's growth in the long run;
- ii. they affect the risk for the firm;
- iii. they involve commitment of large amounts of funds;
- iv. they are irreversible, or reversible at substantial loss; and
- v. they are among the most difficult decisions to make.

2.2.2 The financing decision

Once a firm has made the investment decision, they need to decide on how to fund it. The financing decision deals with the raising of funds by various instruments (debt and/or equity) to acquire long term assets. Working capital management should generally be funded by revenue from sales. Barrons Dictionary (2016) defines financing decisions as decisions that involve, “determining the proper amount of funds to employ in a firm; selecting projects and capital expenditure analysis; raising funds on the most favourable terms possible; and managing working capital such as inventory and accounts receivable”.

From the definition, financing decisions deal with the decision of the type of financing to use between debt and/or equity to pay for capital investments. The decision will be dependent upon a number of factors, e.g. the size of the firm, the terms of the financing option (interest rates, payment terms.), (Barrons Dictionary (2016)).

2.2.3 The dividend decision

The Barrons Dictionary (2016), states that the dividend decision relates to the dividend policy. It asks the following questions: *will the profits be distributed to the ordinary shareholders or will they be retained to finance business activities or both?* These decisions (financing, investment and dividend) are inter-related and the main objective is to maximise the shareholders' wealth. The dividend decision is equally important as it may influence capital structure and share price. There are several factors that influence the dividend decision, which include free cash flow, signalling of information, and clients of dividends. The free cash flow theory states that the firm provides the shareholders with money left after investing in all the projects that have a positive net present value. The signalling of information relates to the movement in the share price in the share market being proportional to the dividend information that is available in the market. A declaration of dividends increases the share price. Management also have to take into consideration the various needs of different shareholders.

The focus of this study is on the financing decision (capital structure decision). It is of utmost importance for an entity to have the expertise needed to make financing decisions,

(Barrons Dictionary, 2016). It is noted that many businesses fail because of various reasons, which include making bad financing decisions, (Barrons Dictionary, 2016).

2.3 Capital structure definitions

Various scholars (Myers, 2001; Anarfo, 2015; Thippayana, 2014, and Adalan, 2015) have defined capital structure differently. However, from all the definitions, one can conclude that capital structure deals with how a firm uses either debt or equity to finance operations and growth. This type of financing covers the long-term investment, composing financing from debt, equity, and hybrid securities that a firm uses to generate its assets, operations and future growth.

The relative ratio of different securities can be determined by the process of capital gearing. According to Investopedia (2010), gearing is defined as the level of a firm's debt related to its equity capital, usually expressed in percentage form. It is a measure of a firm's financial leverage and shows the extent to which its operations are funded by lenders versus shareholders. The appropriate level of gearing for a firm depends on its sector, as well as the degree of leverage employed by its peers. For example, *Firm A* is the manufacturing industry. It has 20 monetary units of debt and 80 monetary units of equity on its balance sheet. The firm is said to be leveraged because it has debt. The gearing ratio is 20%. The gearing ratio may be manageable for a manufacturing firm but it may be said to be too much for a technology firm. However, a high gearing ratio is disadvantageous during a downturn, as the firm is expected to make the capital and interest repayments from limited cash-flows.

The purpose of managing capital structure is to maximise shareholder's wealth and minimise the firm's cost of capital. The way how a firm finances its investments is of utmost importance as it will affect the performance of the firm and also determines if it will survive in the long term. An optimal capital structure has to be achieved.

Myers (2001:81) states that, "the study of capital structure attempts to explain the mix of securities and financing sources used by corporations to finance real investment". According to Anarfo (2015:625), capital structure refers to, "the firm's financing mix mainly debt and equity used to finance the firm's operations". Thippayana (2014:1) explains that

choice of long-term financing mix, employed by the firm, are called capital structure. Adalan (2015:7) defines capital structure as the way in which firms finance their assets with a mix of debt and equity. From the above definitions, capital structure of a firm describes the way in which a firm raises capital needed to establish and expand its business activities. It is a mixture of various types of equity and debt capital a firm maintains, resulting from the firm's financing decisions. The amount of debt that a firm uses to finance its assets is called leverage. Investopedia (2010) defines leverage as, "the use of various financial instruments or borrowed capital, such as margin, to increase the potential return of an investment". Investopedia (2010) also elaborates that a firm with a lot of debt in its capital structure is said to be highly geared or levered.

On the other hand, a firm without any debt is said to be unlevered. Debt represents the claims against resources. Equity includes paid-up share capital, share premium, and reserve and surplus (retained earnings).

There are a lot of important considerations when planning capital structure. The Management Study Guide (n.d.) identifies these considerations as: trading on equity; degree of control; flexibility of financial plan; choice of investors; capital market condition; period of financing; cost of financing; stability of sales; and size of a firm. Each of them are explained briefly below:

- i. Trading on equity - This refers to taking advantage of equity over debt on a reasonable basis. This factor becomes more important when shareholders' expectations are high.
- ii. Degree of control - This capital structure will mainly consist of debentures and loans as compared to equity to enable the directors to have maximum voting rights in a concern.
- iii. Flexibility of financial plan - This factor favours the use of debentures and loans as they can be reversed should the need arise. Unlike equity, which is not refundable thus proving to be rigid.
- iv. Choice of investors - A capital structure should give enough room for a firm to have different categories of investors for securities-debt and equity.

- v. Capital market condition - Generally, during a depression, the capital structure of a firm will be characterised by debentures and loans, whilst during a boom and inflation, a firm prefers to issue equity.
- vi. Period of financing - A firm would use loans from banks and other institutions to raise short term capital, and debentures and equity for long term purposes.
- vii. Cost of financing - The costs related to the type of financing should be considered before committing. Debentures may prove to be cheaper than equity during profit making times.
- viii. Stability of sales - For a firm that is profitable, borrowing may be an option since it will be able to meet the capital and interest repayments, unlike a loss- making firm. Therefore, the option for a loss-making firm would be to issue shares as it is a safer option.
- ix. Size of a firm - The bigger the size of the organisation, the wider its total capitalisation. Therefore, such firms may issue additional shares, and take on loans and borrowings from financial institutions, whereas smaller firms' capital structure may only consist of loans from banks and retained profits.

Wang and Thornhill (2010:1150) explain that firms raise capital through various options, which include common and preferred shares, bank and commercial loans, corporate bonds and convertible debt. Abor and Biekpe (2005:37) state that the variation in capital structure decisions are, therefore, explained by the different theories of capital structure. These variations include, but are not limited to, management behaviour, corporate strategy, and corporate control issues (Beattie, Goodacre & Thomson, 2006).

The various forms of financing available for firms, including banking institutions, are: core deposits, wholesale deposits, equity, debt, and liabilities management. Core deposits are the largest source of finance for banks. These provide a safe and reliable source of finance. These are typical short-term cheque and savings accounts.

Wholesale deposits are similar to interbank certificates of deposit (CDs). They are more expensive and may convey a negative message to depositors that the bank is not competitive enough as compared to peers, thus failing to secure core deposits.

Investopedia (2014) states, “Equity is a more stable form of financing. Several important regulatory ratios are based on the amount of shareholder capital a bank has. Equity capital is expensive; therefore, banks only issue it when they need to raise funds or to facilitate an acquisition or when the bank seeks to repair their capital position typically after a period of elevated bad loans. Banks use debt to respond to their funding needs. Equity is not a major source of capital for most banks”.

The following section will explain in detail the theories of capital structure, which influence what form of financing a firm uses, and in what proportion.

2.4 Theories of capital structure

2.4.1 The MM theory of capital structure

Prior to 1958, there seemed to be no generally accepted theory of capital structure. In 1958, two financial economists, Franco Modigliani and Merton Miller (M&M) wrote a seminal article on capital structure irrelevancy theory. The theory of irrelevancy was presented in an era when research was dominated by assumption that there is no interaction between a firm’s investment and the financial decisions of the firm. Ardalan (2016:1) in his article, states that the MM theory has been praised as the cornerstone of modern scientific study. However, the irrelevancy theory is based on assumptions that are both unrealistic and contradictory to the main assumption of mainstream academic finance. Ardalan (2016:1), lists the assumptions to the irrelevancy theory as follows:

- Capital markets are frictionless;
- Individuals can borrow and lend at the risk-free rate;
- There are no costs to bankruptcy or business disruption;
- Firms issue only two types of claims: risk free debt and equity;
- All firms are assumed to be in the same risk class;
- Corporate taxes are the only form of government levy;
- All cash flow streams are perpetuities;
- There are no signalling opportunities;
- There are no agency costs; and
- Operating cash flows are completely unaffected by changes in capital structure.

Modigliani and Miller (1958:30) are of the opinion that the choice between debt and equity does not have any material effects on the value of the firm. Modigliani and Miller (1958) demonstrate that, “the market value of a firm is determined by its earning power and the risk of its underlying assets, and independent of the way it chooses to finance its investments or distributes dividends. A firm can choose between three methods of financing: issuing shares, borrowing or spending profits (as opposed to disbursing them to shareholders as dividends)”.

According to Luigi and Sorin (2009:315) they identify the two fundamentally different types of capital structure irrelevance positions as: a) The classic arbitrage-based irrelevance position. It states that arbitrage keeps value of the firm independent of leverage, b) The second position states that given a firm’s investment policy, the dividend pay-out it chooses does not affect the current price of shares nor the total return to shareholders. In perfect capital markets, neither the capital structure nor dividend policy decisions matter.

Stiglitz (1969:784) notes five limitations of the M-M proof as,

- i. It depended on the existence of risk classes,
- ii. The use of risk classes seemed to imply objective rather than subjective probability distributions over the possible outcomes,
- iii. It was based on partial equilibrium rather than general equilibrium analysis,
- iv. It was not clear whether the theorem held only for competitive markets, and
- v. except under special circumstances, it was not clear how the possibility of firm bankruptcy affected the validity of the theorem.

But it is these assumptions which appear to be the centre of much of the criticism of the M-M analysis, namely that: (a) individuals can borrow at the same market rate of interest as firms; and (b) there is no bankruptcy.

After criticism of the MM hypothesis by other scholars, Modigliani and Miller subsequently corrected their capital structure irrelevancy proposition to include the effect of taxes in an article published in 1963. Modigliani and Miller (1963:433) argue that the capital structure of a firm should compose entirely of debt due to tax deductions on interest payments, but this could not be supported by what was happening as no firm had 100% debt. Therefore,

it was evidenced that the theory had weaknesses. Boodhoo (2009:2) states that the theory may be valid but in practice, there are bankruptcy costs that are proportional to the amount of debt and therefore, the higher the debt level, the higher the bankruptcy costs.

Despite its many shortcomings, the MM irrelevancy theory led to both clarity and controversy relating to capital structure. Scholars refuted the irrelevancy theory as its basis of a perfect capital market does not really hold water since imperfections exist in the capital market. If capital structure seems irrelevant in a perfect capital market, then imperfections, which exist in the real world, must be the cause of its relevance. These imperfections include taxes, agency costs, bankruptcy costs. Therefore, in a bid to criticise the irrelevance theory, scholars formulated various theories, which refute these assumptions. For example, the agency theory recognises agency costs and costs of bankruptcy, as opposed to the MM theory, which assumes that these costs do not exist.

The MM irrelevancy theory stirred serious research to refute it both theoretically and empirically. As a result, several theories on capital structure were born. These theories include but are not limited to, the trade-off theory, the pecking order theory, the signalling theory, the market timing theory, and the agency theory. According to Myers (2001) as well as Harris and Raviv (1991), no theory is universally accepted and practically applied. Myers (2001:81) states, "There is no universal theory of the debt-equity choice, and no reason to expect one. There are several useful conditional theories however". Buferna, Bangassa and Hodgkinson (2005) identify the most popular and important theories of capital structure in literature as the static trade-off theory, the pecking order theory, the agency costs theory, and the market timing theory. These theories will be explained in detail below.

2.4.2 Trade-off theory

This theory originated from the study of Kraus and Litszenberger (1973:11) who formally introduced interest tax shields associated with debt and the costs of financial distress. The trade-off theory suggests that managers attempt to balance the benefits of interest tax shields against the present value of the possible costs of financial distress. The theory assumes that there is an optimum capital structure, which is achieved after accounting for market imperfections such as taxes, agency costs, and bankruptcy costs. Kemsley

and Nissim (2002:2045) define a tax shield as, “the reduction in income taxes that results from taking an allowable deduction from taxable income. For example, because interest on debt is a tax-deductible expense, taking on debt creates a tax shield. A tax shield is therefore a way to save cash flows and it in turn increases the value of the business”.

However, taking on debt is not an effective approach in the saving of cash flows, since the interest expense will be more than the tax saving.

According to Myers (1984:580), “a firm’s optimal debt ratio is usually viewed as being determined by a trade-off of the costs and benefits of borrowing, holding the firm’s assets and investment plans constant. The firm is portrayed as balancing the value of the interest tax shields against various costs of bankruptcy or financial embarrassment.

He identifies the costs of borrowing as costs of adjustment, and costs of financial distress. Costs of adjustment are viewed as those costs of adjusting to the optimum. Myers (1984:580) however, is of the opinion that they are not of major concern to the managers as they are rarely mentioned in literature.

Miller (1977:261) in his famous “Debt and Taxes” paper, criticised the extreme position taken in the original MM theory, which made interest tax shields more valuable. He described an equilibrium of aggregate supply and demand for corporate debt, in which personal income taxes paid by the marginal investor in corporate debt is just offset by the corporate tax saving. Miller (1977:262) also disagrees with the optimum capital structure model of the trade-off theory. He supports the school of thought that, bankruptcy and agency costs exist but are disproportionately small relative to the tax savings they supposedly offer. He iterates that in literature the costs of bankruptcy and tax savings figures mostly refer to bankruptcies of individuals and small businesses. He mentions that Warner is the only scholar to date who had tabulated the costs of bankruptcy for bigger organisations. Miller (1977:12) goes on to state that Warner, “tabulated the direct costs of bankruptcy and reorganization for a sample of 11 railroads that filed petitions in bankruptcy under Section 77 of the Bankruptcy Act between 1930 and 1955. He found that the eventual cumulated direct costs of bankruptcy averaged 5.3 percent of the market value of the firm's securities as of the end of the month in which the railroad filed the

petition. There was a strong inverse size effect, and moreover, for the largest road, the costs were 1.7 percent”.

Miller (1977) also criticises the notion that debt has tax advantages that increase the value of the firm. He explained that the tax system acts in other ways to reduce the gains from debt financing.

There are different theories regarding aggregate supply and demand of corporate debt. These are the corrected MM theory of 1963, the theory by Miller (1977), and the compromise theories. In the corrected MM theory, any tax paying corporation gains by borrowing. The greater the marginal tax rate, the greater the gain. This is illustrated on the figure below (Figure 2) by the top line. Miller (1977) contradicts the MM theory and states that personal income taxes on interest payments would exactly offset the corporate interest tax shield, provided that the firm pays the full statutory rate. However, any firm paying a lower rate would see a net loss to corporate borrowing and a net gain to lending. This is illustrated by the bottom line on the graph. The compromise theories, which were advanced by Modigliani and others represent the middle line on the graph. But regardless of which theory holds, the slope of the line is always positive. Thus, although the theories may tell different stories about aggregate supply and demand of corporate debt, they make essentially the same predictions about which firms borrow more or less than average.

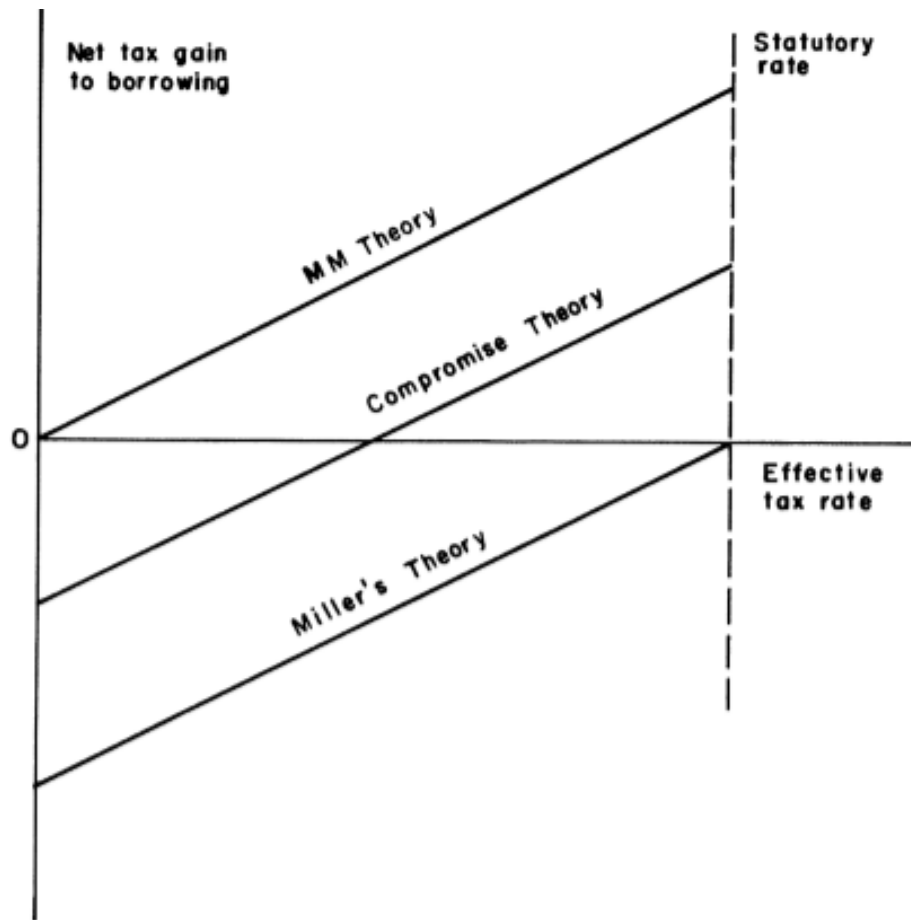


Figure 2: The net tax gain to corporate borrowing (Myers, 1984:580)

Myers (1977) describes the costs of financial distress as legal and administration costs of bankruptcy, agency, moral hazard, monitoring, and contracting costs. Scholars are in agreement that these costs exist, however it is the magnitude which is contentious. Literature supports two qualitative statements about financing behaviour:

- i. Risky firms should borrow less, other things being equal. Risk is defined as the variance rate of the market value of the firm assets. The higher the variance rate, the greater the probability of default on any given package of debt claims. Since costs of financial distress are caused by threatened or actual default, safe firms ought to be able to borrow more before expected costs of financial distress offset the tax advantages of borrowing.

- ii. Firms holding tangible assets in place having active second-hand markets will borrow less than firms holding specialised intangible assets or valuable growth opportunities. Cost of financial distress depends not just on the probability of trouble, but the value lost if trouble comes. Specialised, intangible assets or growth opportunities are more likely to lose value in financial distress (Myers, 1977:153).

Luigi and Sorin (2009:316) point out that different authors use “trade-off theory” to describe a family of related theories, which include the static trade-off theory and the dynamic trade-off theory. The static trade-off theory postulates that firms have an optimal capital structure determined by trading-off the costs against the benefits of debt or equity. Debt has an advantage of the tax shield, whilst it has a disadvantage of the cost of potential financial distress when heavily geared. So, there is a trade-off between the tax shield and higher risk of financial distress. The dynamic trade-off theory states that the correct financing decision depends on the financing margin the firm anticipates in the next period. The optimal financial choice today depends on what is expected to be optimal in the next period. The costs of debt include potential bankruptcy costs. According to Boodhoo (2009:5), “bankruptcy costs refer to the costs associated with declining credit terms with customers and suppliers”. These costs negatively affect the value of the firm. Suppliers will not give long credit terms to the firm because it faces risk of default. Customers will also tend to avoid buying from the firm because warranties and other after sales services may not be met.

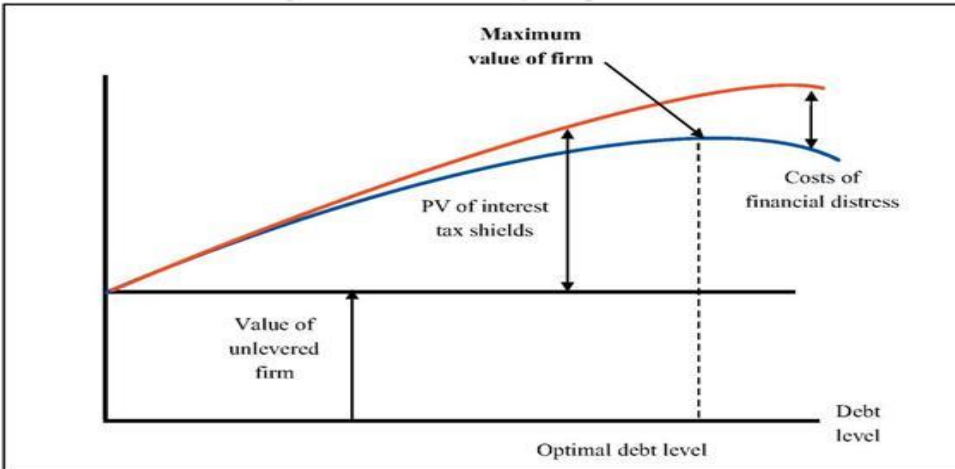


Figure 3: Trade-off theory of capital structure (anon, 2017)

Figure 3 explains the trade-off theory. The starting point is the horizontal line showing an unlevered firm. When debt is introduced, the value of the firm increases because of the deductibility of the interest payments for tax purposes. This is called the interest tax shield of debt because debt shields the firm from paying more in taxes. The increase in debt also causes an increase in the value of the firm as shown by the blue curve. However, after a certain level of debt (known as the optimum debt level), the value of the firm starts falling because the benefits of debts are now outweighed by the costs. This is shown on the graph by the red curve. As the debt level raises, so does the risk of bankruptcy.

2.4.3 Pecking order theory

Ross (1977) as well as Leland and Pyle (1977) are the pioneers who have explicitly accounted for asymmetric information in their work. Nevertheless, the first ones to actually take into account asymmetric information in the area of capital structure are Myers (1984) and Myers and Majluf (1984). They showed that the choice of capital structure improves inefficiencies in the firm's investment decisions that are caused by information asymmetry.

According to the advocates for the pecking order theory, firms show a distinct preference for using internal finance over external finance as illustrated below diagrammatically. The hierarchy is dependent upon a variety of factors, some of which are costs associated with the type of financing or order of financing, or the signal that the issuance of some form of

finance gives to the market. Priority 1 is internal funds, namely, retained earnings. This is because they are considered to be the “safest” and cheapest type of financing. If internal finances are not enough, the external funds are chosen in such a way to minimise the additional costs of asymmetric information. Baskin (1989:27) mentions that in addition to the effect of asymmetric information, taxes and transaction costs also tend to motivate the pecking order behaviour. The second option will be debt finance. Although there are costs of distress or bankruptcy associated with debt, it is still considered to be cheaper than equity. The most expensive source of finance is believed to be equity finance due to various costs associated with new equity issues. These costs include underwriting discounts, registration fees, taxes and selling, and administrative expenses.

The costs of asymmetric information are defined as a situation in which one party in a transaction has more or superior information compared to another. For example, the seller knows more than the buyer. The additional costs reflect a “lemon premium”.

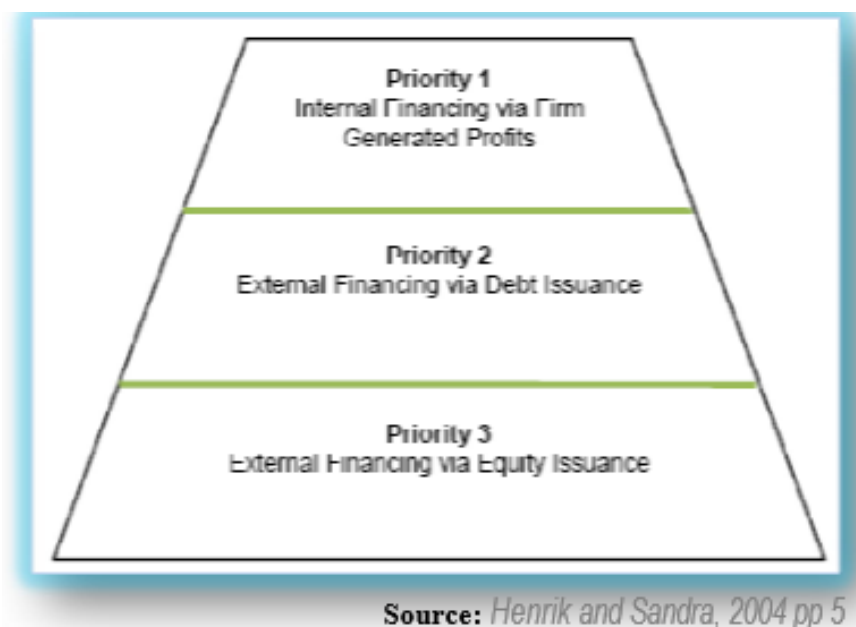


Figure 4: Illustration of pecking order theory (Hendrik and Sandra:2004)

Akerlof (1970:175) explains these costs as costs that outside investors ask for the risk of failure for the average firm in the market. For example, a bank runs short of capital, and decides to securitise some of its loans by issuing bonds backed by the loans.

A rational investor looking at the bonds will demand a higher yield on his bonds than the loans he is paying to the bank. The difference is what is called the “lemon premium”. The reason for the premium is that it is assumed that the banker knows his clients better than the investor, and so puts loans from the bad customers in the collateral pool whilst keeping the good loans for the bank.

Akerlof (1995:497) gives an example of the lemon principle, “A second example of the workings of the Lemons Principle concerns the extortionate rates which the local moneylender charges his clients. In India, these high rates of interest have been the leading factor in landlessness; the so-called "Cooperative Movement" was meant to counteract this growing landlessness by setting up banks to compete with the local moneylender. While the large banks in the central cities have prime interest rates of 6, 8, and 10 per cent, the local moneylender charges 15, 25, and even 50 per cent. The answer to this seeming paradox is that credit is granted only where the granter has (1) easy means of enforcing his contract or (2) personal knowledge of the character of the borrower. The middleman who tries to arbitrage between the rates of the moneylender and the central bank is apt to attract all the "lemons" and thereby make a loss”.

In the absence of investment opportunities, the firm retains profits and builds up financial shares to avoid having to raise external finance in the future. Lawal (2014:33) explains that the implication is that profitability would be expected to explain the firm leverage level such that more profit will imply lesser use of debt instruments. However, this contradicts the trade-off theory submission that more profit attracts more leverage. Empirical evidence supports both the trade-off and pecking order theories of capital structure.

Myers (1984:581) contrasts the trade-off theory with the pecking order theory. He explains a four-step hypothesis that affirms:

- i. prefer internal finances to external finances;
- ii. adapt the target dividend pay-out ratio to investment opportunities;
- iii. first draw on retained earnings or marketable securities if internally generated cash flow less than investment opportunities; and
- iv. will issue safe securities first, if external finances are needed, then hybrid securities, then lastly equity.

He further explained that the pecking order has been around for some time as alluded by Donaldson (1961:67) when he observed that, “management strongly favoured internal generation as a source of new funds even to the exclusion of external funds except for occasional unavoidable “bulges” in the need for funds”.

For all non-financial corporations over the decade 1973-1982, internally generated cash covered an average of 62% of capital expenditures, including working capital management. The bulk of external financing came from borrowings. Net new-shares issues were never more than 6% of external financing, (Donaldson, 1961).

2.4.4 Agency theory

The agency theory is a well-established theory, and since its inception, various research, focusing on different areas, has been carried out. The agency problem can be called the “asset substitution problem”, (Harris & Raviv, 1991:297). The agency theory postulates that there are different types of agency relationships in a firm. The principal engages the agent to carry out their business on their behalf with the aim to maximise their wealth. However, the principal and the agent do not always have the same goals. The agent may use the principal’s resources for their own benefit(s). This gives rise to agency problems. The principal attempts to solve the problem by employing monitoring mechanisms to ensure goal congruence to a certain extent. These measures include both positive and negative motivational approaches.

Agency relationships carry with them special ethical issues and problems. The agents have to act in the best interests of the principal. This may not be a simple thing for the agents as they may be faced with controversial decisions. For example, the shareholders instruct management to lay off workers so as to maximise their returns. Shareholders’ interests are therefore advanced to the detriment of the workers.

Berle & Means (1932) in their book *The modern corporation and private property* initially developed the agency theory concept and they argue that there is an increase in the gap between ownership and control of large organisations arising from a decrease in equity ownership. They explain that the dispersion of shareholder ownership in big corporations results in shareholders being uninterested in the day-to-day running of the affairs of the

firm, leaving management and directors managing the resources of the firm to their own advantage without effective shareholder scrutiny.

Thereafter, in the early 1970s, Ross (1973) and Mitnick (1973) working independently, each presented a theory of agency. Ross (1973:134) outlines agency as a universal principle and not just limited to the firms. He focuses more on the problem of incentive and presents out a model for inducing the agent to produce maximum gains for the principal. Mitnick (1973), on the other hand, offers a more general theory of agency. He identifies the problems of agency as: 1) the principal's problem; 2) the agent's problem; and 3) policing mechanisms and incentives. He explains that the principal's problem is to motivate the agent to act in a manner that will achieve the principal's goals. The examples of motivational tools include, but are not limited to, financial incentive and prospects of sanctions. The agent's problem is that he may be faced with decisions to either act in the principal's interest, his own interest, or some compromise between the two when they do not coincide. Policing mechanisms and incentives are intended to limit the agent's discretion, such as surveillance or specifically directed tasks. Mitnick (1973:10) defines incentive systems as, "systems that offer rewards to the agent for acting in accordance with the principal's wishes. Examples include positive (bonuses and increased pay), and negative incentives (fear of reprisals)".

In 1976, Jensen and Meckling further developed the agency theory. They explored agency costs and its sources; and identified monitoring the agent's actions as a source of agency cost. Whilst the previous literature focused on how to structure incentives and the principal/agent relationship to maximise the principal's welfare, Jensen and Meckling (1976) investigated the incentives faced by each of the parties and the elements entering into the determination of the equilibrium contractual form, characterising the relationship between the manager and the shareholders.

Jensen and Meckling (1976:308) define an agency relationship as, "a contract under which one or more persons, the principal[s], engage another person, the agent, to perform some service on their behalf which involves delegating some decision-making authority to the agent". Delves and Patrick (2008) define an agency theory as, "the study of the agency relationship and the issues that arise from this, particularly the dilemma that the

principal and the agent, while nominally toward the same goal, may not always share the same interests". They are of the opinion that the literature on agency theory mainly focuses on methods and systems – and their consequences – that arise to try to align the interests of the principal and the agent. In the case of an entity, the agent will be management, the principal, and the shareholders.

When the firm is leveraged, there is another form of agency relationship, which results in the agency problem between the debt holders and shareholders. The agency problem between the principal and agent (shareholders and management; and debt holders and shareholders) is explained in the paragraphs that follow.

Shareholders entrust the day-to-day running of the organisation to management. They expect managers to manage the firm in such a way that returns to shareholders are maximised, thereby increasing profit. However, managers may pursue their own interests at the expense of the shareholders. This means that managers will use the excess free cash flow available to fulfil personal interests instead of increasing returns to the shareholders (Jensen & Ruback, 1983:5). Managers would prefer to expand the business and increase their salaries, which may not necessarily increase share value. Shareholders have to ensure that free cash flow is not tied up in unprofitable projects but rather paid out to the shareholders in the form of dividends. The agency conflicts have implications for, among other things, corporate governance and business ethics.

Jensen and Fama:301 (1983) further explore the separation of ownership and control in large, complex organisations. They developed a 4-step decision process: 1) initiation of proposals of resources' utilisation and structuring of contracts; 2) ratification (choosing which initiatives will be implemented); 3) implementation of ratified decisions; and 4) monitoring the performance of the decision agents and implementation of rewards.

Mizruchi (2004:580) is of the opinion that the agency theory is in many respects a critique of managerialism. Enteman (1993:192) describes managerialism as, "an international ideology on which rests the economic, social, and political order of advanced industrialized societies and from which arises the impoverished notion that societies are equivalent to the sum of transactions made by the managements of organizations". However, Jensen and Meckling (1976) disagree with key managerialist claims, in

particular, the rejection of the profit maximisation assumption. They acknowledge that managers might have motivations that differ from those of shareholders, and they admit that monitoring these managers under conditions of wide shares dispersal can be problematic. The issue, then, is to create an "alignment of incentives," in which managers' interests will correspond with those of owners.

Pinegar and Wilbricht (1989) discovered that the principal-agent problem can be dealt with to some extent through the capital structure. They argue that increasing the debt to equity ratio will help firms ensure that managers are running the business more efficiently. The debt ensures that managers use the free cash flow to settle the debt obligation and interest repayments. Managers will not invest in negative NPV projects, but will run the firm efficiently. Inefficient managers will be replaced by efficient ones. Therefore, shareholders prefer leveraged firms as debt is used to monitor the managers.

But when debt is introduced in a firm, debt holders (lenders) will also have a key role in the firm's governance structure; they will participate in the decision-making processes. This, in turn, creates another agency problem, which will be between the shareholders and the debt holders since their objectives are not aligned. Shareholders are interested in dividends, whilst the debt holders are interested in getting their principal and interest repayments honoured. Florackis (2008:44), states that shareholders put pressure on the managers to invest in projects that will ensure high returns, so that they can meet the debt obligations and still pay dividends. However, these projects tend to have higher risk. The debt holder on the other hand, pushes the manager to invest in less risky projects to avoid bankruptcy. If the firm makes enough profit to cover the debt obligations only, shareholders will not get dividends as debt holders have priority over shareholders. Hence, a conflict of interest arises as the managers, shareholders, and debt-holders try to impose different strategies. The governance structure of the firm becomes constrained. Furthermore, if the bondholders are of the opinion that management is trying to take advantage of them, they will either refuse to provide additional funds to the firm or will charge an above market interest rate to compensate for the risk of expropriation of their claims, to the detriment of the shareholders.

As evidenced from the discussion above, in attempting to solve the agency problem, agency costs are incurred. Agency costs are expenses incurred in order to sustain an effective agency relationship. These costs are borne by the shareholders to encourage managers to maximise shareholder wealth rather than behave in their own self interests. The costs of agency come in various forms which include: 1) costs to monitor managerial activities, e.g. audit costs; 2) costs related to structuring the organisation to monitor management through appointing boards; and 3) opportunity costs incurred when shareholder imposed restrictions limit the ability of managers to take actions that advance shareholder wealth.

If shareholders fail to monitor management at all, there will be loss to shareholder wealth. However, if shareholders attempted to monitor every action by management, then there would be excessive agency costs. An optimum should be reached whereby the agency costs borne by shareholders are determined in a cost-and-benefit context. The costs should be increased if the increase also causes an increase in shareholder wealth.

Much of the discussion for both Jensen and Meckling (1976), and Jensen & Fama (1983) involves means by which owners can provide effective monitoring mechanisms. According to Jensen and Meckling (1976) these mechanisms include:

- i. the provision of equity to management. When managers own shares in the firm, they share interests in its performance with the remaining equity holders;
- ii. to provide direct monitoring through the appointment of an expert board of directors, who are constrained to operate in the shareholders' interest because of their need to maintain their reputations;
- iii. the market, both in terms of its effect on the firm's share price and the related market for corporate control. This last approach is potentially the most threatening, since it raises the possibility that managers could be ousted.

Mizruchi (2004:589) explains each of the monitoring approaches' potential downside from the perspective of owners, "When managers own shares, they divert some of the equity of the firm to themselves, thus diluting the value of the remaining owners' equity. Board members, regardless of their reputation, still need to be monitored, which could be difficult if shareholders are widely dispersed. On the other hand, takeovers can be disruptive, and

generally occur only after the firm's equity has become devalued, a situation that owners are unlikely to welcome”.

Booth *et al.* (2001:100) state that, “although the use of debt controls the agency costs of managerial discretion, it also generates its own agency costs. A highly debt-financed firm might forgo good investment opportunities due to the debt overhang problem”.

De Jong (1997) identified that growth opportunity, free cash flow, and corporate governance are pivotal in agency costs theory. Titman and Wessels (1988) used growth opportunity to investigate the agency cost, Jensen (1986) used free cash flow, and De Jong (1997) used corporate governance to show how it influences the agency costs theory.

2.4.5 Market timing theory

Although the market timing behaviour has been empirically established by others already, Baker and Wurgler (2002) found evidence from the US that, the influence of market timing on capital structure is highly persistent. According to De Bie and Haan (2007:186), the theory states that the current capital structure is the cumulative outcome of past attempts to time the equity market. The theory implies that firms issue new shares when perceived to be overvalued and that firms repurchase own shares when considered to be undervalued. According to Luigi and Sorin (2009:320) the market timing theory of capital structure postulates that firms time their equity issues. Firms choose to issue new shares when the share price is perceived to be overvalued, and buy back when undervalued.

The fluctuations in share prices affect firm capital structure. There are two scenarios related to this theory, i.e. economic agents are rational, and also irrational. When economic agents are rational, equity is issued after positive information is released, which reduces asymmetry problems between managers and shareholders, resulting in an increase in share price. When economic agents are irrational, there is a time varying mispricing of the shares of the firm. Managers issue equity when they believe its cost is irrationally low and repurchase when they believe it is irrationally high.

Baker and Wurgler (2002) view market timing as the practice of issuing shares at high prices and repurchasing at low prices; the intention being to exploit temporary fluctuations

in the cost of equity relative to the cost of other forms of capital. They mentioned that there is evidence in the market from four different kinds of studies to confirm that market timing is important in corporate financial policy. These are:

- i. Analyses of actual financing decisions show that firms tend to issue equity instead of debt when market value is high, and tend to repurchase equity when market value is low.
- ii. Firms tend to issue equity when the cost of equity is relatively low and repurchase when the equity is relatively high.
- iii. Firms tend to issue equity when investors are rather too enthusiastic about earnings prospects.
- iv. Managers admit market to market timing in anonymous surveys. Graham and Harvey (2001:240) found that two thirds of CEOs agree that, “the amount by which shares is undervalued or overvalued was an important or very important consideration” in issuing equity, as nearly as many agree that “if out share price has recently risen, the price at which we sell is “high”.

Frank and Goyal (2009:6) explain that managers look at the current conditions in both debt and equity markets. If they need financing, then they use whichever market is currently more favourable. If neither debt nor equity market is favourable, then there will not be any issuances. Alternatively, if current conditions are unusually favourable, funds may be raised even if the firm currently has no need for funds.

Huang and Ritter (2005:221) are in support of the market timing theory as opposed to the trade-off and pecking order theories. They observed that in the USA, inconsistent with pecking order theory, equity issues are frequent, and announcement effects of seasonal equity offerings are only weakly related to the volume of external equity financing. In addition, they argue that inconsistent with the trade-off theory, firms adjust very slowly towards target leverage, and past securities issues have strong and long-lasting effects on capital structure even after controlling for target leverage.

2.5 Determinants of capital structure

According to the various capital structure theory studies, empirical studies have identified firm-level characteristics. Various scholars developed a number of capital structure determinants. The capital structure theories disagree on the influence of the various factors on the firm's capital structure. Harris and Raviv (1991:299) state that the models surveyed (e.g. the trade-off and the pecking theory) have identified a large number of potential determinants of capital structure. The empirical work so far has not, however, sorted out which of these are important in various contexts. Titman and Wessels (1988), and Harris and Raviv (1991) point out that the choice of suitable explanatory variables is potentially debatable.

According to Al-Najjar and Taylor (2008:919), the Jordanian firms are subject to the same determinants of capital structure as firms in developed markets, namely: profitability, firm size, growth rate, MB ratio, asset structure, and liquidity. Titman and Wessels (1988:2) identify the attributes that different theories of capital structure suggest may affect the firm's debt-equity choice denoted as asset structure, non-debt tax shields, growth, uniqueness, industry classification, size, earnings volatility, and profitability.

Findings from over ten studies identify the most popular explanatory variables as profitability, size, growth rate, asset structure, MB ratio, tangibility, volatility, and non-debt tax shields. These explanatory variables will be discussed fully below. Also, Table 1 below, a diagram extracted from a paper by Buferna, Bangassa and Hodgkinson (2005) summarises some of the explanatory variables.

Table 1: Theories of capital structure and expected signs (Buferna, Bangassa & Hodgkinson, 2005)

The expected signs of the coefficients for the three capital structure theories

Proxy	Definitions	Trade-off Theory	Asymmetric information Theory	Agency cost Theory
Profitability	Profit before tax to the book value of total assets	+	-	?
Tangibility	Fixed assets to total assets	+	+	+ (Debt cost) - (Equity cost)
Growth	The percentage change in the value of assets	?	+	-
Size	The natural logarithm of total assets	+	?	+

A positive sign “+” indicates that the theory suggests a positive relationship between the variable and the measure of leverage, whereas a negative sign “-“indicates that the theory suggests a negative relationship between the variable and the measure of leverage. “?” means that there is no clear prediction.

2.5.1 Size

From a study done by Titman and Wessels (1988:3), a number of scholars have suggested that leverage ratios may be related to firm size. Evidence has been provided by scholars confirming that bankruptcy costs appear to constitute a larger proportion of a firm's value as that value decreases. In addition, relatively large firms tend to be more diversified and are, therefore, less prone to bankruptcy. They are also of the opinion that the cost of issuing debt and equity securities is also related to firm size. Smaller firms tend to pay more to issue both debt and equity, and they, therefore, prefer to issue short term debt to reduce such costs.

The trade-off theory supports a positive relationship between size of an entity and leverage. This is because larger firms can borrow at relatively lower rates than smaller firms because of high level of non-current assets, economies of scale, stable cash flow,

and credit worthiness. Studies by Frank and Goyal (2009:8), Mutenheri and Green (2003), and Chidoko and Hove (2012) support the trade-off theory in this regard.

Theoretically, the relation between size and leverage ratio is unclear (Wiwattanakantang, 1999:386). He further explains that many studies argue that larger firms tend to be more diversified and hence are less likely to go bankrupt. The bigger firms tend to give more information to lenders than smaller firms, resulting in monitoring costs being lower for bigger firms. Also, larger firms tend to have a higher capacity to borrow than smaller ones. Those who lend to large firms are more likely to be paid back their interest and principal than lenders to small firms thereby reducing the agency cost that is associated with debt and hence large firms can have higher debts.

According to Anarfo (2015:629), “young and smaller firms on the other hand cannot tolerate high debt ratios since they may not have stable earnings”. Empirical evidence shows that there is a positive relationship between the size of a firm and its capital structure (Friend & Lang 1988; Barclay & Smith 1996). Their analysis indicates that smaller firms are likely to finance their operations by equity rather than debt. Frank and Goyal (2009:8) highlight that the pecking order theory predicts an inverse relationship between firm size and leverage. He argues that since large firms have been around for long, they are well-known and have had an opportunity to retain earnings.

Bauer (2004:164) is of the opinion that the relationship between size and leverage is unclear. He explains that larger firms tend to be diversified and fail less often. Therefore, a positive relationship is expected between size and leverage. He, however, adds that size may also be a representation for the information outside investors have, which should increase their preference for equity relative to debt. According to Bauer (2004:165), empirical studies do not provide clear information. Some authors, for example, Huang and Song (2002); Rajan and Zingales (1995); and Friend and Lang (1988) found a positive relationship between size and leverage, whilst some studies report a negative relation (Kester, 1986; Kim & Sorensen, 1986; Titman & Wessels, 1988). They are of the opinion that the results are very often weak as far as the level of statistical significance is concerned.

2.5.2 Profitability

Fisseha (2010:23) defines profitability as a measure of earning power of a firm. The earning power of a firm is the basic concern of its shareholders. According to Mutenheri and Munangagwa (2015:105), the empirical studies that have examined the impact of profitability on capital structure decisions have found mixed results. Various authors such as Myers (1984); Mutenheri and Green (2003); Titman and Wessels (1988); and Rajan and Zingales (1995) support the conclusion that there is a negative relationship between debt ratio and profitability as firms that are profitable and have the capacity to generate high earning use less debt capital to equity than those which do not generate high incomes. However, Huang and Song (2002); Sarkar and Zapatero (2003); and Chidoko and Hove (2012) found a positive relationship between profitability and debt ratio.

Wiwattanakantang (1999:386) supports the pecking order theory view, in that high profit firms should have a smaller debt ratio because firms use internal funds first before external funds. Furthermore, creditors tend to advance loans to firms with high current cash flow. This mean that the pecking order theory seems to suggest that there is a negative relationship between a firm's capital structure and profitability. In agreement with the findings above is Anarfo (2015:629) who states that evidence from empirical studies seems to support the pecking order theory. Most studies have found a negative relationship between profitability and capital structure (Friend & Lang 1988; Barton, Hill, & Sundaram , 1989; and Hall, Hutchinson, & Michaelas , 2004) suggest a negative relationship.

Bauer (2004:159) compared the findings based on three theories of capital structure, namely, the free cash flow, trade-off theory, and the pecking order theory. He states that from the trade-off theory point of view, more profitable firms should have higher leverage because they have more income to shield from taxes. Hence, the more profitable a firm is, the more debt it will have in its capital structure. Thus, the trade-off theory hypothesizes a positive relationship between profitability and debt level (Frank & Goyal, 2003;225). The free cash-flow theory would suggest that more profitable firms should use more debt in order to discipline managers, to induce them to pay out cash instead of spending money on inefficient projects. However, from the pecking order theory point of view, firms prefer

internal financing to external financing. So more profitable firms have a lower need for external financing and, therefore, should have lower leverage.

2.5.3 Tangibility

Fisseha (2010:23) states that collateral value of assets, also known as Asset Composition or Tangibility; are those assets that creditors can accept as security for issuing the debt. Most capital structure theories argue that the type of assets owned by a firm in some way affects its capital structure choice since a firm's tangible assets are the most widely accepted sources for the bank borrowing and secured debts.

Titman and Wessels (1988:3) state that it is more advantageous for a firm with assets that they can use as collateral to issue debt, because costs associated with issuing debt are reduced as a result of the collateral. These firms tend to favour debt over equity. They further explain that for highly leveraged firms, there are higher chances of bankruptcy and bondholders are inclined to closely monitor such firms. The costs associated with this agency relation, may be higher for firms with assets that are less collateralisable since monitoring the capital outlays of such firms is probably more difficult. For this reason, firms with less collateralisable assets may choose higher debt levels to limit their managers' consumption of perquisites (Titman & Wessels, 1988:3).

Wiwattanakantang (1999:385) concludes that firms with a lot of investment opportunities i.e., less tangible assets, are likely to have a low debt ratio. According to the literature, a positive relationship exists between asset tangibility and a firms' debt ratio, that is, the more tangible assets the firms has, the more debt it can take (Anarfo, 2015:629). This is because the firm may liquidate its tangible assets if need be and service its debts, thereby increasing its debt ratio. Anarfo (2015:629) goes on to explain that firms with more tangible assets tend to prefer debt to equity financing, and firms that invest more of its retained earnings in tangible assets will have low bankruptcy cost and financial distress than firms that rely on intangible assets. Based on the above, the relationship between asset tangibility and firms' performance is expected to be positive. This finding is in line with the static trade-off theory.

The expectation is that firms with tangible assets may use more debt and serve the assets as collateral, and hence lenders prefer advancing debt to these firms than the firms with intangible assets. By using the firm's assets as collateral, the cost associated with adverse selection and moral hazards, are reduced. From the studies done by Storey (1994) and Berger and Udell (1998), it is also suggested that bank funding will depend on whether or not its lending can be secured by tangible assets.

Empirical evidence suggests that there is a positive relationship between asset tangibility and debt ratio of firms, and this is consistent with the pecking order theory (Friend & Lang, 1988; MacKie-Mason, 1990; Rajan & Zingales, 1995). Booth *et al.* (2001: 101) state, "The more tangible the firm's assets, the greater its ability to issue secured debt and the less information revealed about future profits." Thus, a positive relation between tangibility and leverage is predicted. On the other hand, Frank and Goyal (2003), support the pecking order theory and state that firms with few tangible assets face larger asymmetric information problems and will, therefore, tend to raise more debt over time and become more levered.

2.5.4 Growth opportunity

"Numerous empirical studies on determinants of capital structure have been published over the years. A variety of dependent variables have been used, similarly, many explanatory variables such as size and profitability have been popular among researchers. However, a controversy exists regarding the determinants influencing capital structure due to the different outcomes", (Allen, Nilapornkul & Powell, 2013:402). Findings from their study indicate mixed results based on the trade-off and pecking order theories. The trade-off theories tend to support that, a negative relationship exists between leverage and growth opportunities, whilst the pecking order theory supports a positive relationship.

According to Titman and Wessels (1988:4), equity-controlled firms have a tendency to invest sub-optimally to expropriate wealth from the firm's bondholders, this in turn, increases the costs associated with this agency relationship for firms in growing industries, which have more flexibility in their choice of future investments. Expected future growth should thus be negatively related to long-term debt levels. Myers (1984)

offers a solution to the firms for mitigating the above problem, to short term debt as compared to long term debt, thus suggesting that short term debt ratios are positively related to growth rates if growing firms can substitute long term debt for short term debt. On the other hand, Jensen and Meckling (1976); Smith and Warner (1979); and Mutenheri and Green (2003) argue that the agency costs will be reduced if firms issue convertible debt. This suggests that convertible debt ratios may be positively related to growth opportunities. However, Titman and Wessels (1988:4) go on to explain that growth opportunities are capital assets that add value to a firm, but cannot be collateralised and do not generate current taxable income, this may suggest a negative relation between debt and growth opportunities.

Harris and Raviv (1991:305) note from various empirical research on agency theory that leverage is negatively associated with the extent of growth opportunity. Other scholars in agreement with the findings include Jensen and Meckling (1976) and Stulz (1990). Several studies shed light on the specific characteristics of firms and industries that determine leverage ratios (Bradley, Jarrell, & Kim , 1984; Castanias, 1983; Long & Malitz, 1985; Kester, 1986; Marsh, 1982; and Titman & Wessels, 1988). These studies generally agree that leverage increases with fixed assets, non-debt tax shields, growth opportunities, and firm size (Harris & Raviv, 1991:334).

The authors above further explain that firms with future growth opportunities should use more equity financing as opposed to debt because a higher leverage firm is more likely to pass up profitable investment opportunities. This, therefore, implies a negative relation between growth opportunities and leverage. However, for example, Kester (1986) and Huang and Song (2002) demonstrate a positive relation between growth opportunities and leverage. In his article, Bauer (2004:164) comments that the results, both theoretical and empirical, are not always unambiguous.

Frank and Goyal (2009:8) state that, “growth increases the costs of financial distress, reduces free cash flow problems, and exacerbates debt related agency problems. Thus, the trade-off theory predicts that growth reduces leverage. By contrast, the pecking order theory suggests that firms with more investments should accumulate more debt over time, thus growth opportunities and leverage are positively related”.

Frank and Goyal (2009:8) identified that the market to book asset ratio is the most commonly used proxy for growth opportunities and it is the most reliable measure.

According to Arnafo (2015:640), an observation was made from the research by Hall *et al.* (2004) that when firms have high growth potential, most of the time, their retained earnings are not enough to finance their positive NPV projects and they resort to borrowing, thereby increasing their debt ratios. Kester (1986); Titman and Wessels (1988); and Barton *et al.* (1989) support that capital structures and firm growth suggest a positive relationship between them. However, other researchers (Kim & Sorensen, 1986; Rajan & Zingales, 1995; Roden & Lewellen, 1995) suggest that a negative relationship exists between a firm growth in assets and its capital structure because high growth firms use less debt based on the pecking order theory. According to Michaelas, Chittenden, and Poutziouris (1999) future growth is positively related to leverage ratio.

2.5.5 Volatility of assets

According to Bauer (2004:170), volatility may be understood as a proxy for risk of a firm (probability of bankruptcy). Volatility of assets relates to the change in the value of assets over time [2010 to 2014] as measured by the standard deviation of change in total assets. Therefore, it is assumed that volatility is negatively related to leverage. Titman and Wessels (1988) allude to the negative relationship. However, several scholars conclude, based on empirical evidence, that there is a positive relationship between volatility and leverage. The positive relation between volatility and leverage is confirmed by Kim and Sorensen (1986) and Huang and Song (2002). Many authors have also suggested that a firm's optimal debt level is a decreasing function of the volatility of earnings.

Schoubben and Van Hulle (2004) argue that as the risk of a firm increases, the cost of debt increases simultaneously. Creditors incorporate the cost of bankruptcy in their debt contracts to protect themselves, and this, in turn, causes the cost of debt to increase. Hence, firms should rely on internal funds rather than debt, in line with the pecking order theory. This suggests a negative relation between leverage and a firm's earnings volatility. However, according to the argument by Schoubben and Hulle (2004), the impact of asymmetric information is higher in riskier firms. Therefore, there is need for "quality

signalling and discipline”. That would imply a positive relationship between leverage and a firm’s earnings volatility.

2.5.6 Taxation

The impact of taxation on leverage is mixed. Little support is found in the empirical analysis about the relevance of tax to capital structure decision. Titman and Wessel (1988) reported an insignificant relationship between effective tax rate and debt ratio, while MacKie-Mason (1990); Mutenheri and Green (2003); Huang and Song (2002); and Chidoko and Hove (2012) reported a negative relationship.

2.5.7 Liquidity

Mutenheri and Green (2003) reported a negative relationship on liquidity and debt ratio, which is in line with the arguments of pecking order theory.

According to pecking order theory, firms prefer to use internal funding as opposed to external funding. Therefore, firms have to create reserves from retained earnings, and as a result, there is no need for external funding.

2.5.8 Non-debt tax shields

The empirical evidence suggests a negative relationship between non-debt tax shield and debt ratio exists (Titman & Wessels, 1988; Mutenheri & Green, 2003). The tax effects on financing decisions are examined following the non-debt tax shields argument of DeAngelo and Masulis (1980). They argue that firms can use other non-interest item such as depreciation, tax credit, and pension funds to reduce corporate tax payments. Tax deductions for depreciation and investment tax credits are substitutes for the tax benefits of debt financing. Therefore, firms that have higher non-debt tax shields are likely to use less debt.

2.6 Capital structure – Empirical evidence

2.6.1 Capital structure in developed countries

Since the seminal article on capital structure by Modigliani and Miller (1958), a lot of research has been done on the determinants of capital structure. Following from that, a

lot of empirical work has been done in this context to validate the capital structure determinants' relationship with leverage. These empirical studies identify firm-level characteristics that affect the capital structure of firms. The earliest empirical studies were done in developed countries, particularly in the USA. One of the classical studies was carried out by Titman and Wessels (1988); where they examined the theoretical determinants of capital structure by investigating them empirically. The results showed consistencies with the theories of capital structure for the factors affecting the capital structure choices of firms. Scholars then started carrying out empirical studies for other international countries, e.g. the G7 countries. Recently, a few studies have been done for the developed countries.

Rajan and Zingales (1995) tested four capital structure determinants (tangibility of assets, growth, firm size, and profitability) on the G7 countries (U.S, Japan, Germany, France, the U.K, Italy, and Canada) to find out whether or not the capital structure choices in other countries are based on the similar factors influencing capital structure of US firms. Conclusively, this paper found that at an aggregate level, firm leverage was fairly similar across the G-7 countries.

After Rajan and Zingales' (1995) study, several research papers, testing the applicability on other countries apart from the US, were published. One of the prominent studies was carried out by Gropp and Heider (2007) who approached the issue of bank capital structure using banks from developed countries (US and 15 EU members, for 14 years). They specifically tested the significance of size, profitability, market-to-book ratio, asset tangibility, and dividend paying status in determining bank leverage. Their results provided strong support for the relevance of standard determinants of capital structure on bank capital.

2.6.2 Capital structure in developing countries

Booth *et al.* (2001); Maghyereh (2005); Amidu (2007); Abor (2008); and Bas, Muradoglu, and Phylaktis, (2010) are among the scholars who have studied the capital structure issue in the developing nations. One of the prominent studies was done by Booth *et al.* (2001). The researchers collected data from the International Finance Corporations (IFC) and carried out a study for the largest firms in 10 developing countries, namely; India,

Pakistan, Thailand, Malaysia, Turkey, Zimbabwe, Mexico, Brazil, Jordan, and Korea. The variables mentioned included: tax, business risk, asset tangibility, sales, return on assets, and market-to-book ratio. From their analysis, the authors conclude that the variables that explained the capital structures in developed nations are also relevant in the developing countries, irrespective of differences in institutional factors across these developing nations.

Bas *et al.* (2010) examine the determinants of capital structure decisions of firms in developing countries collecting secondary data for 11,125 firms from the World Bank for 25 developing countries. Their findings on tangibility and profitability confirm previous findings. According to the results, private, small, medium, and large firms follow the pecking order theory on their debt financing decisions. However, listed firms prefer equity financing to long term debt financing. Another major finding is the size effect. They found different responses from small and large firms towards debt financing. As firms become larger, they become more diversified and risk of failure is reduced as a result of higher leverage.

2.6.3 Capital structure in Zimbabwe

Not many studies have been carried out in the Zimbabwean environment. Mutenheri and Green (2003) examined the impact of the economic reform programme on the financing choices of Zimbabwean listed firms. They found out that asset tangibility, tax rates, growth opportunities, earnings, volatility, and bank liquidity are all significant determinants of capital structure. Gwatidzo and Ojah (2014) used a panel of listed firms in Ghana, Kenya, Nigeria, South Africa, and Zimbabwe, and they investigated corporate capital structure in Africa. The results indicate that firms' profitability, size, asset tangibility, and age, relate significantly to leverage. Chidoko and Hove (2012) empirically examined the major determinants of capital structure decisions of multinational corporations listed on the Zimbabwe Shares Exchange. They utilised panel data regression analysis (fixed effects {within} estimator) to empirically examine the impact of different determinants on leverage. The results show that tax, tangibility, and size have a significant positive relationship with debt ratio while the pay-out-ratio, non-debt-tax shields, and profitability

have a negative relationship with debt ratio. The results too, are broadly consistent with theory.

2.7 Bank capital structure overview

According to Tradipedia (2016), a bank is a licensed and regulated financial institution that lends money, accepts deposits, and carries out other financial transactions for its clients. Banks play an important role as an intermediary in the financial system. They have three main functions which are: 1) offering safe deposit options for people, for which such savings also accrue interest income; 2) responsibility for the payments system as people are using the electronic payments more than cash; and 3) issuing of loans to individuals and firms.

Tradipedia (2016) identifies three different types of banks, namely; the central bank, retail banks, and investment banks. Investopedia (2014) defines a central bank as an institution responsible for supervising the monetary system of a nation or group of nations. Their usual duties are to issue currency, regulate the money supply, and control interest rates. Their decisions affect the financial markets in general and the currency markets in particular. Sometimes, they also supervise the commercial banking system in their country. Investment banks, sometimes called wholesale banks or merchant banks, provide financial services to other financial institutions and corporates, and occasionally to countries. Their key role is the issuance of securities for listed firms. They also provide loans to raise capital or for expansion. This is also known as merchant banking. Investment banks are usually regulated by the central bank of the country in which they operate and/or a specific regulatory authority. Retail banks, also called commercial banks, are financial institutions that provide services such as accepting deposits, giving business loans and auto loans, mortgage lending, and basic investment products like savings accounts and certificates of deposit.

A lot of research has been done on what determines a firm's capital structure after the seminal work by Modigliani and Miller (1958). However, the research focused on non-financial firms because banks are the most heavily regulated financial institutions in the world, thereby making them complicated. A number of studies have been done on the

capital structure for the banking sector. However, the question of what determines banks' capital structure, still remains unanswered.

The findings of Gropp and Heider (2010:620) shed new light on the debate over whether regulation or market forces determine capital structure of banks. Gropp and Heider (2010:620) report that, "for most banks, regulation and 'buffers' are not binding and may have secondary importance in determining their capital structures". Theories of optimal capital structure developed by Flannery (1994); Myers and Rajan (1998); Diamond and Rajan (2000); and Allen, Carletti and Marquez (2009) suggest that capital requirements are not necessarily binding. Asarkaya and Ozcan (2007) report that, banks hold more capital than the regulatory minimum. The explanation they put forward is that banks tend to hold more capital as a precaution against possible shocks and that bank-specific variables rather than regulation are more important in determining capital structure choices.

Berlin (2011:1), in his article, comments that, "empirical work done by banking scholars support the view that market forces have been an important determinant of banks' capital decisions since the early 1990s. He adds on that, consistent with literature on non-financial firms and other studies in the banking literature, all researchers find a positive relationship between banks' asset size and target leverage". He concludes that bank leverage decisions are driven by market pressures.

According to the study by Berlin (2011:7), "researchers have tried to distinguish between two possible types of explanations to explain variations in capital levels over time and across banks:

- i. Regulatory capital requirements actually determine bank capital. Bank hold some cushion above the required capital level to reduce the likelihood of a regulatory intervention or the need to raise capital or reduce assets at short notice.
- ii. Bank capital levels are determined in the market, according to some trade-off model similar to the model in the standard capital literature".

In addition to the two possible explanations above, in his Master's thesis, Bjorn (2013:18) mentions the three views on bank capital structure as the regulatory view, the buffer view, and the standard corporate finance view. These will be discussed briefly below.

i. Regulatory view

Berger, Richard and Giorgio (1995:395) identify two primary differences between banking and non-financial firms: the regulatory capital requirements as stipulated by Basel Accords the regulatory safety net in the form of deposit insurance. These two requirements for banks are established in order to ensure financial stability, shield depositors and alleviate bank fragility. Moreover, the regulatory requirements are also based on a need to mitigate those moral hazard incentives from deposit insurance, which implies that banks should choose extreme levels of leverage. Hence, the two aspects act as tools, which are used to limit the negative externalities caused by bank failures.

ii. Buffer view

Keppo and Peura (2006:2170) argue that, according to the buffer view, banks hold capital buffers to mitigate the asset risks needing to be managed, such that the bank can satisfy its minimum capital requirement even under relatively adverse future scenarios. Banks generally hold capital well above the regulatory requirement so as to avoid the cost of having to issue equity at short notice as a consequence of violating minimum capital requirements. Jokipii (2008:1445) states that, the amount in excess of the regulatory requirements is determined by various determinants based on bank characteristics.

iii. Standard corporate finance view

To date, a lot of theories have been proposed in search for the answer to corporate financing decisions, and some have shown a tenacious nature.

However, to this point, researchers have not found a way to persuasively distinguish these hypotheses.

According to Allen *et al* (2014:11), several papers in the theory of bank funding have shown that deposits are often the optimal form of funding for banks (Diamond & Dybvig, 1983; Diamond, 1984). In doing so, this literature tends to treat deposits simply as another form of debt. However, there is considerable evidence that the market for deposits is significantly segmented from other markets.

There are relatively few empirical studies of bank capital structure. Some recent examples are Flannery and Rangan (2008); Gropp and Heider (2010); and Mehran and Thakor (2011:1021). Flannery and Rangan (2008) document how US banks' capital ratios varied in the last decade. Gropp and Heider (2010) found that the determinants of bank capital structure are similar to those for non-financial firms. Mehran and Thakor (2011) document a positive relation between bank value and capital in the cross section.

According to Berlin (2011:4) banks are highly levered firms as compared to non-financial firms. He made reference to Gropp and Heider's research in 2004. The median leverage was nearly 93% in book value terms and just over 87% when measured in market value terms. He compared these findings to Frank and Goyal's study in 2003 for non-financial firms which were 24% and 23% respectively.

Acharya, Mehran, Schuermann and Thakor (2012:2), explain the reasons for why banks are highly levered as compared to non-financial firms. They state that one school of thought says that deposits are a factor of production in banking. Therefore, banks not only use deposits to make loans, the institutions also provide liquidity and transaction services to depositors. As a result, banks are expected to be highly levered, since deposits are a form of debt. A second popular argument is that banks prefer high leverage because interest payments on debt are tax deductible, while shareholder dividends are not. This statement is true, but it cannot explain why banks are more levered than non-financial firms that enjoy the same debt tax shield. A third argument, generally common among scholars, has appeared in theories that emphasise the monitoring and disciplining role of leverage. As debt increases, the loss-absorption capacity provided by equity capital in the event of bankruptcy shrinks, inducing creditors to monitor the activities of

management more closely and to raise the price of debt to compensate for the increased risk.

A more probable reason why banks are highly levered is that banks prefer to lend out borrowed funds as opposed to own funds. The adverse effect of inflation is then curtailed.

Octavia and Brown (2008:7) note that, “previous empirical work has centred on market discipline and the role of subordinated debenture holders in controlling risk-taking by banks. However, none of the research has provided robust evidence that market discipline actually ‘influences’ bank risk taking since the proxies mostly measure ex-post-performance”.

Gropp and Heider (2007) approached the issue from a different perspective. They used a sample of banks from developed countries, and they specifically tested the significance of size, profitability, market-to-book ratio, asset tangibility, and dividend paying status in determining bank leverage. Overall, their results provided strong support for the relevance of standard determinants of capital structure on bank capital. Octavia and Brown (2008:7) extended the existing literature by analysing banks from developing countries as it is unreasonable to conclude that the limited existing evidence may be generalised to developing economies. Capital markets in developing countries are relatively less developed and it is reasonable to posit that the private sectors in these countries are less able to assist regulators in monitoring and disciplining risk-taking behaviour of banks. Octavia and Brown (2008) used a sample of 56 publicly listed commercial banks from ten developing countries and found the standard determinants of capital structure to have explanatory power in explaining variation in bank capital above the minimum requirement. This result holds for both bank-book and market capital.

2.8 The Basel Accord and the banking industry in summary: Basel I to Basel III

The Basel Committee on Banking supervision provides a forum for regular cooperation on banking supervisory matters. Its objective is to enhance understanding of key supervisory issues and improve the quality of banking worldwide. It is also aimed at setting up a fair and consistent international banking system in order to decrease competitive inequality among international banks.

Asarkaya and Ozcan (2007:96) argue that Basel I Capital Accord of 1988 set forth minimum capital requirements for major financial institutions in three steps. In the first step, each bank had to maintain a total risk-weighted capital ratio of at least 8%. Regulatory is defined in the second step, whilst the third step Basel I defines a standard method of calculating the regulatory capital ratios.

Tier 1 and Tier 2 capital is defined as being capital with the highest quality (common equity and some preferred shares), and subordinated debt and some types of hybrid instruments respectively. Tier 1 should make up 50% of the bank's regulatory capital. However, according to Asarkaya and Ozcan (2007:96), the accord was criticised by academics and large banks from various aspects because it's one size fits all approach to capital adequacy made it difficult to apply to different banks with different fields of activities. Haldane (2012:1) also alluded to the fact that the Basel I Accord is too simplistic and non-comprehensive as evidenced by the document being only 30 pages. With the evolution of the financial sector, and the shortcomings of the Basel I, the Committee developed Basel II in 2004, and it was adopted in 2008, but implemented in 2009. In 2009, a Basel 2.5 was released to address the growing concern over banks' capital requirements, particularly with respect to riskier credit-related products. Basel II is built on three pillars. Asarkaya and Ozcan (2007:96) identify and describe these pillars as:

- i. minimum capital requirements-establishes the capital requirements for credit risk, market and operational risk.
- ii. supervisory review-outlines the requirements on banks' management of risks and capital and defines the roles and powers of the supervisors, and
- iii. market discipline-sets out requirements on banks for public disclosures, namely the obligation to publish information on their business profile, risk exposure and risk management. Market participants therefore have better information on banks, improving the market for market discipline.

After a series of negotiations, the international financial community agreed to tighter monetary and fiscal reforms for the financial sector. Basel III was endorsed in 2010, but full implementation is expected to be in 2019 as various aspects of the new accord will be subject to transitional and phase-in arrangements. Basel III (or the third Basel Accord)

is a global, voluntary regulatory framework on bank adequacy, stress testing, and market liquidity risk. It was developed in response to the deficiencies in financial regulation revealed by the financial crisis of 2007-2008. It is intended to strengthen bank capital requirements by increasing bank liquidity and decreasing bank leverage. Hannoun (2010:16) concludes that Basel III enhances not only the micro-prudential framework but also adds a macro-prudential approach that is system-wide and systemic. He adds that the new Basel will try to reduce the probability and severity of future financial crises, thus promote higher growth over the long term. Figure 5 below presents a summary of Basel III.

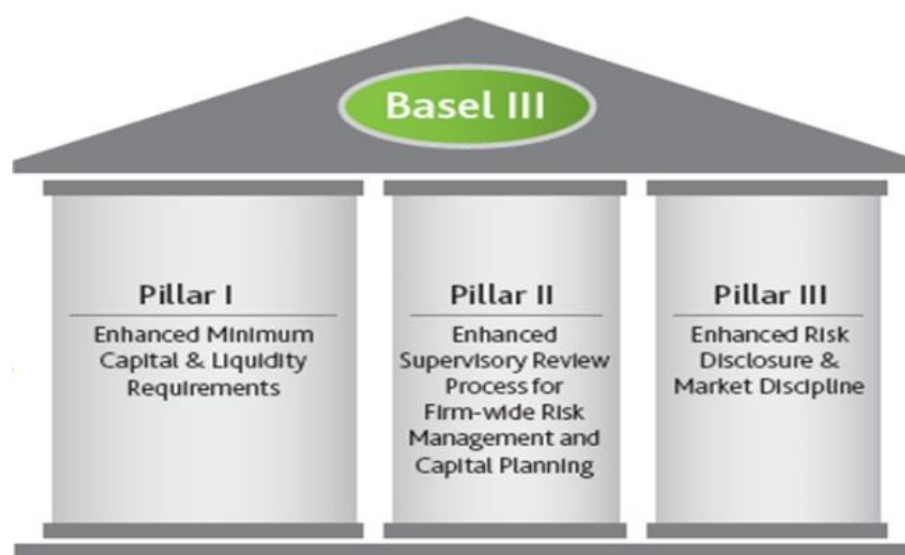


Figure 5: Summary of Basel III

<http://2.bp.blogspot.com/-2mek9CBa8y0/UyfxcFXpn1I/AAAAAAAAAV4/2LpJihR8WuE/s1600/Basel-II-till-III.png>

2.9 Zimbabwean banking industry overview

Nhavira, Mudzonga and Mugocho (2013:12) offer a brief background of the Zimbabwean banking environment since its independence in 1980. They highlight that, “Zimbabwe’s current financial regulation and supervisory architecture was inherited from the Rhodesian Government at independence in 1980. Specifically, the Reserve Bank of Zimbabwe, the Commissioner of Insurance and Pension Funds and the Zimbabwe Shares Exchange as regulator of the capital markets are good examples of this case. Since then, the financial system has undergone several changes in recent years. The Commissioner of Insurance was superseded by The Insurance and Pension Fund Commissioner through Act 7 of 2000 and The Zimbabwe Shares Exchange has been superseded by the Securities Exchange Commission through the Securities Act 17 of 2004. This regulatory and supervisory regime served Zimbabwe well until 1990 as the financial sector was stable and witnessed no financial crisis or bank collapses”.

In 1991, the government of Zimbabwe embarked on an Economic and Structural Adjustment Programme (ESAP), part of which was the implementation of financial reforms through liberalisation and deregulation to promote competition and improve the quality in service, innovation, and efficiency. New licenses were issued to financial players during the period from 1993 to 2003. In 1990, before the financial reforms, there were only 21 banking institutions. In 1993, they had increased to 23 and by 2003, before the banking institutions’ collapse, they had increased to 41, (Nhavira et al, 2013).

The banking sector in Zimbabwe is composed of commercial banks, building societies, merchant banks, and a savings bank. Commercial banks make up over 70% of the banks in Zimbabwe. The commercial banking subsector accounted for 80.46% of the banking sector deposits as at 31 December, 2015. The bank composition as at 31 December, 2015 is indicated in the table below.

Table 2: Architecture of the banking sector (Quarterly banking sector report (31 December 2015))

As at 31 December 2015, the composition of the banking sector was as shown in the table below.

Architecture of the Banking Sector

Type of Institution	Number
Commercial Banks	13
Building Societies	4
Savings Bank	1
Total Banking Institutions	18

Table 3: Detailed list of banking institutions (Mangudya, 2016)

Institution	Core Capital as at 31 December 2015 (USD million)	Prescribed Minimum Capital requirements (USD million)
CBZ Bank*	205.68	25
Stanbic Bank	86.06	25
BANC ABC	67.89	25
Standard Chartered Bank	57.36	25
Barclays Bank	46.43	25
Ecobank	44.40	25
Steward Bank	42.23	25
NMB Bank	42.09	25
MBCA Bank	41.31	25
FBC Bank	39.29	25
ZB Bank	38.99	25
Agribank	35.30	25
Metbank	33.82	25
MERCHANT BANKS		
Tetrad Investment Bank (Under Judicial Management)	(24.52)	25
BUILDING SOCIETIES		
CABS Building Society	108.55	20
FBC Building Society	34.98	20
ZB Building Society**	15.68	20

* including CBZ Building Society

** Society being merged with ZB Bank

According to Nhavira *et al* (2013:12), banks are more prone to financial trouble than other firms because of their activities. A banking institution relies heavily on the confidence of the public for its continued existence. Being a public interest entity, it is vital to have regulation to ensure and maintain consumers' confidence in the financial industry. There are three main reasons for financial regulation:

- i. To ensure system stability, i.e. the safety and soundness of the financial system.
- ii. To provide smaller (individuals), retail clients with protection.
- iii. To protect consumers against monopolistic exploitation.

In Zimbabwe, it is noted that there are five principal agencies charged with the duty of financial regulation and supervision. These are the Reserve Bank of Zimbabwe (RBZ); the Ministry of Finance; the Deposit Protection Board; the Securities Exchange Commission (SEC); and the Insurance and Pensions Commission.

Nhavira *et al*. (2013:64) offer background to bank supervision in Zimbabwe since independence. They state that bank supervision started in 1985 with a Banking Act, which was later established in 2000.

The first onsite examination was done in 1996. The Banking Act (Chapter 24:20) and Banking Regulations Statutory Instrument 205 of 2000 provide for the registration, regulation, continuous monitoring and supervision of persons conducting banking business in Zimbabwe. The Reserve Bank of Zimbabwe Act (Chapter 22:15) empowers the Reserve Bank to supervise banking institutions and foster stability and proper functioning of the financial system.

In 2006, the central bank adapted risk-based supervision according to international standard. Due to changing financial sector innovations, which include financial conglomerates, there was a need to upgrade supervision. Zimbabwe is currently in the process of implementing the Basel II Accord. However, over the years, a number of banks have failed and had their licenses revoked. According to statistics from the Deposit Protection Corporation, over ten banks were closed between 2003 and 2012. See the table below for the list of banks closed:

Table 4: List of closed banks (RBZ Monetary Policy Statements and Supervision Reports:2012)

Year	Institution	Cause of collapse
1998	United Merchant Bank	Failure of corporate governance
2002	Universal Merchant Bank	Failure of corporate governance
2002	Zimbabwe Building Society	Failure of corporate governance
2003	First National Building Society	Failure of corporate governance
2004	Rapid Discount House	Failure of corporate governance
2004	Barbican Bank	Failure of corporate governance
2004	Time Bank	Failure of corporate governance
2004	Intermarket Bank	Failure of corporate governance
2006	Royal Bank	Failure of corporate governance
2006	Trust Bank	Failure of corporate governance
2012	Genesis Inv Bank	Failure of corporate governance
2012	Interfin Bank	Failure of corporate governance
2012	Renaissance	Failure of corporate governance
2012	Royal Bank	Failure of corporate governance
2012	Barbican Bank	Failure of corporate governance

Source: RBZ Monetary Policy Statements and Supervision Reports

After 2012, more banks were closed and these include Afrasia Bank Zimbabwe Limited (formerly Kingdom Bank); Allied Bank Limited (formerly ZABG); Tetrad Investment Bank (under judicial management); Capital Bank; Century Discount House; and Sagit Finance House. Bank failure was mainly caused by governance issues, non-transparency operations, and non-adherence to rules.

According to the Monetary Policy Statement (2016:42), the Reserve Bank noted differences in the reports submitted by banking institutions, in coverage, depth, and quality. The governor was of the opinion that these differences may be addressed by finalising guidance to the banking sector in line with international best practice (Basel). The guidance was expected to be issued into the market by 31 March, 2016. Therefore, it can be concluded that Zimbabwe has not fully adopted the Basel Accord though it makes reference to it in coming up with its own guidance.

The overall mix of methods of financing for banks is partly influenced by regulatory requirements. These requirements are capital and reserve. In Zimbabwe, the following regulatory requirements have to be adhered to by banks:

1. A minimum regulatory capital adequacy (CAR) ratio of 12%

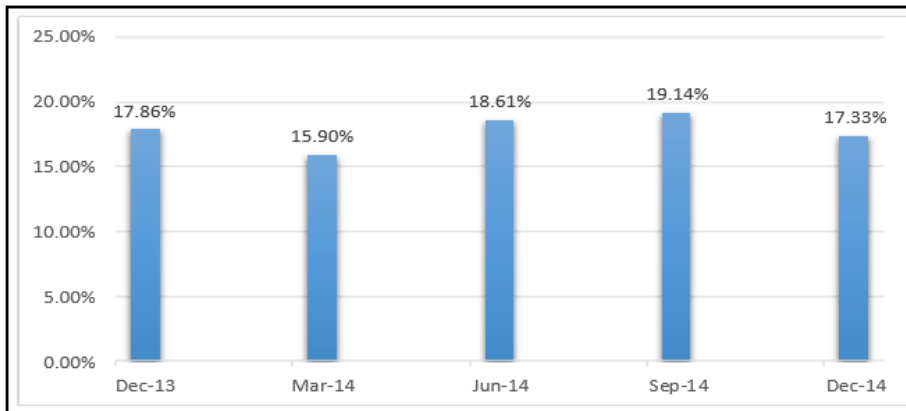


Figure 6: Capital adequacy ratio (RBZ, 2014)

It can be noted from figure 6 that the capital adequacy ratios of the banks were well above the minimum prescribed (12%) for both 2013 (December it was 17.86%) and 2014 (December it was 17.33%). The losses incurred by other banking institutions as well as the increase in non-performing loans, poses a threat to the capital levels.

2. Capital requirement of \$25 million (\$100 effective 2020)

According to the information in Table 5, almost all the banks were well above the capital requirement of USD\$25 million. CBZ is now over the USD\$100 million requirement set for 2020. Other banks such as Stanbic Bank are also working towards the USD\$100 million mark.

Table 5: Bank capital levels (Monetary Policy Statement, 2015)

INSTITUTION	Core Capital as at 31 December 2014 (USD million)	Core Capital as at 30 June 2015 (USD million)	Prescribed Minimum Capital Requirements (USD million)
COMMERCIAL BANKS			
CBZ BANK*	175.34	188.72	25
STANBIC BANK	79.73	82.79	25
STANDARD CHARTERED	61.90	58.11	25
BANCABC	63.33	64.43	25
BARCLAYS BANK	41.67	43.15	25
NMB BANK	37.01	40.00	25
MBCA BANK	36.21	38.85	25
STEWARD BANK	43.92	41.26	25
ECOBANK	36.89	41.26	25
METBANK	24.62	33.74	25
ZB BANK	9.56	31.14	25
FBC BANK	31.84	33.26	25
AGRIBANK	12.37	36.47	25
MERCHANT BANKS			
TETRAD INVESTMENT BANK (Under Provisional Judicial Management Liquidation)	(31.73)	(32.70)	25

3. Capital to assets ratio

It was noted that the banks were adequately capitalised for the four years under review with a ratio of 9% in 2014 (2011-11%; 2012-11%; 2013-9%). The Banking Regulations (2000) indicate that, “a leverage ratio of more than 9% would be classified as well capitalized, and those between 6-9% as adequate whilst, those between 3-6% would be regarded as undercapitalized”.

4. Non-performing loans (NPL) to total gross loans

Zimbabwe reported 15.91% of NPL to total gross loans in 2014 (2011-7.55%; 2012-13.46%; 2013-15.92%). Zimbabwe’s NPL figures advance the recommended cut-off of 5% and this shows a fragile state of financial stability as high NPL bring into disrepute the liquidity of the banking system. Liquidity is a function of the proper management of a bank’s assets, and loans comprise a large portion of those assets.

5. Profitability ROA (Return on assets) and ROE (Return on equity)

The return on assets computes the proficiency of use of the bank's potential, while the return on equity calculates the rate of return on shareholder investment. ROA is calculated as net income/total assets; while ROE is calculated as net income/equity.

Table 6: Profitability (return on assets) and ROE (return on equity)

Return on assets (ROA)

	Barclays	CBZ	FBC	NMB	ZB	Average
2011	0.64%	2.86%	2.42%	2.37%	2.22%	2.35%
2012	0.22%	2.64%	1.74%	3.15%	1.77%	2.13%
2013	0.83%	1.12%	1.74%	-0.07%	0.04%	0.93%
2014	2.05%	0.89%	0.21%	0.47%	-1.56%	0.62%

Return on equity (ROE)

	Barclays	CBZ	FBC	NMB	ZB	Average
2011	5.41%	34.50%	17.23%	19.43%	16.04%	22.38%
2012	1.82%	31.97%	15.30%	24.60%	13.39%	20.67%
2013	6.79%	15.88%	18.33%	-1.40%	0.30%	11.13%
2014	13.37%	12.12%	2.43%	3.20%	-15.66%	6.64%

Source: Financial statements of banks and own computations

From the results in Table 6 above, the average ROA was positive and above 1.5% for 2011 and 2012. 2013 and 2014 were close to 1%. NMB and ZB Bank recorded negative ROAs in 2013 and 2014 respectively. On average, the rate of return on investment was positive for the four years under investigation. It was above 10% except for 2014. This was due to ZB's ROE dropping to 15.66%.

6. Non-interest expense to gross income

The ratio was at 70% in 2014 while in the previous years, such as 2011, it was 61%; 2012, 66%; and 2013, 73%. The non-interest expense is quite high as it constitutes 70% of total income. The biggest non-interest expenses are salaries and rentals.

In addition, The Central Bank, RBZ conducts regular examinations of banks and financial institutions, using the CAMELS approach. The last on-site examination of the banks was in 2014. The CAMELS ratings evaluate banks on capital adequacy, asset quality, management and corporate governance, liquidity and funds management, and sensitivity to market risks. From the Table, 7, it can be noted that the banks are performing rather well and as expected by the RBZ, with CBZ performing better than all the other banks. NMB and ZB had substandard ratings for asset quality (NMB); and capital adequacy, asset quality, and earning (ZB). CBZ had strong and satisfactory ratings.

Table 7: CAMELS table (RBZ, 2014)

	Capital Adequacy	Asset Quality	Management	Earnings	Liquidity	Sensitivity to market risk
Barclays Bank	2	2	3	3	2	1
CBZ	1	2	1	1	2	2
FBC						
NMB	2	4	3	2	2	2
ZB	4	4	3	4	2	2

Key 1. Strong; 2. Satisfactory; 3. Fair; 4. Substandard; 5. Weak

External credit ratings

The banks are also given external credit ratings. The external credit ratings were given by Global Credit Rating (GCR), a credit rating agency accredited with the Reserve Bank of Zimbabwe. As at 31 December, 2014 the external credit ratings of the stable banks, were as shown on the table below.

Table 8: External credit ratings (Global Credit Rating, 2014)

Bank	Rating by GCR	Meaning
Barclays Bank	AA-	indicates very high credit quality
CBZ	A+	indicate high credit quality
FBC	A-	indicate high credit quality
NMB	BB+	indicates that it is below investment but capacity for timely repayment exists
ZB	B+	Below investment grade and possessing risk that obligations will not be met when due

The ratings for the long debt are graded as follows: 1) investment grade and; 2) non-investment grade. The investment grade has the following grades:

- AAA is the highest-grade quality. Extremely low risk factors;
- AA+, AA and AA: indicates very high credit quality;
- A+, A and A: indicate high credit quality; and
- BBB+, BBB and BBB: indicate adequate protection factors and is considered sufficient for prudent investment.

The non-investment grades are as shown below:

- BB+, BB, BB-: indicates that it is below investment but capacity for timely repayment exists;
- B+, B, B-: indicates below investment grade and possessing risk that obligations will not be met when due;
- CCC: Well below investment securities; and
- LD/DD: defaulted on one or more or all of its obligations.

Percentage contribution total equity and liabilities

From the analysis of the statements, the financial position of the 15 banks for the five years indicates that Zimbabwean banks finance themselves through deposits from customers, balances with other banks, liabilities in transit, foreign liabilities, capital reserves, other liabilities, and off-balance sheet liabilities. The deposits consist of demand deposits, savings deposits, fixed deposits, and foreign deposits. Most of the funding is through demand deposits from customers. Capital reserves are the second contributor, although, in percentage terms are significantly lower than demand deposits.

CBZ contributes a significant portion of the total equity and liabilities for the banks combined. Refer to Table 9 for the analysis.

Table 9 :Percentage contribution total equity and liabilities (compiled by researcher)

	2011	2012	2013	2014
CBZ	47%	44%	52%	51%
Barclays	13%	13%	12%	11%
FBC	9%	11%	11%	13%
ZB Bank	11%	11%	9%	11%
NMB	8%	9%	9%	10%
Afrasia	7%	8%	4%	3%
Tetrad	4%	5%	4%	2%
Total contribution	100%	100%	100%	100%

Source: computations done from financial statements of banks

According to Nhavira *et al.* (2013:37), the regulator, RBZ, employed some mechanisms such as ease of entry into the banking sector to ensure that the sector is competitive. Competition is defined here as a situation where the market pressure is such that each firm's ability to influence the market is limited. Thus, the market influences the firms. However, in the case of Zimbabwe, the banking sector is not so competitive. There are six leading banks, which seem to control the market (Barclays Bank, Banc ABC, CABS, CBZ, Stanbic, and Standard chartered) with CBZ dominating the industry since it acts as the banker to the government and, therefore, has a higher deposit concentration in comparison with other banks. The Herfindahl Hirschman index (HHI) is used to measure the level of competition in an industry. The HHI for banking was 0.20 in 2012, indicating a moderate concentration.

CBZ Bank Limited

CBZ is the biggest bank in Zimbabwe in terms of total assets/ liabilities and profitability. The total deposits contributed 66% towards total equity and liabilities in 2011 (2012-60%, 2013-47%, and 2014-62%). Of the total deposits, demand deposits were 74% in 2011 63% in 2012, 56% in 2013, and 43% in 2014.

Barclays

The bank's main sources of funds are total deposits, capital and reserves, and off-balance sheet liabilities. These contributed 94% of the funding for the four consecutive years. Total deposits contributed 75% in 2011, 69% in 2012, 69% in 2013, and 64% in 2014.

FBC

Total deposits are the main source of funding for the bank in all four years. They contributed 40% in 2011, 73% in 2012, 46% in 2013, and 47% in 2014.

NMB

The total deposits were 63% in 2011, 63% in 2012, 59% in 2013, and 59% in 2014.

ZB Bank

Total reserves, capital and reserves, and off-balance sheet liabilities contributed 86% in 2011, 88% in 2012, 66% in 2013, and 66% in 2014.

The banking sector in Zimbabwe is quite complex and comprises commercial banks, merchant banks and building societies. The RBZ publishes annual reports to show how the industry performed in the current year in comparison to the previous year. The statement of financial position is analysed and the changes from year- on- year are explained. Profitability and liquidity are also explained in detail. The important ratios for banks are also discussed.

2.10 Conclusion

Chapter 1 of the study introduced the problem statement and the contribution the research will make to the body of knowledge. It also introduced the primary and secondary objectives. Several research studies have been done around capital structure, but little has been done regarding the capital structure influencing decisions for banks in developing countries, particularly Zimbabwe. Chapter 2 offered a comprehensive review of literature and sought to create an outline for the study by classifying the important issues in capital structure in order to address the theoretical objectives. Therefore, in an effort to do so, capital structure was defined, and the theories and determinants of capital structure were discussed in detail. Empirical evidence from prior studies were also reviewed for both the developed and developing countries. A brief background to the Zimbabwean banking industry was also given in the chapter. This chapter, therefore, complied with the theoretical objectives as stated in Chapter 1. Chapter 3 will point out the methodology of the study. Definitions and measurements of the variables will be well defined in this chapter.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

Chapter 3 creates the foundation for understanding the subsequent empirical analysis. The overall purpose of this research is to determine the factors affecting financing decisions made by the banks listed on the Zimbabwe Shares Exchange from the period 2010 to 2014. From this broad purpose, the research will determine if the explanatory variables of capital structure that affect the non-financial firms in the developed countries also affect the banking industry in Zimbabwe. The goals of this dissertation are divided into primary and secondary objectives – the secondary objectives were achieved through literature review and the empirical objective through empirical analysis. Therefore, this chapter will focus on the empirical objective.

Firstly, the target population from which the sampling frame is selected is described in detail. The sample method and size are also discussed. Secondly, the measuring instrument and data collection method(s) are discussed. The dependant and explanatory variables are defined and critically analysed. Lastly, the statistical analysis methods employed are explained in detail.

3.2 Study design

This research presents an empirical analysis of the determinants of capital structure of the banking sector in Zimbabwe for the period between 2010 and 2014.

A mixed methods approach (qualitative and quantitative) was employed. Mixed methods research is defined by Johnson and Onwuegbuzie (2004:17) as the class of research where the researcher mixes or combines qualitative and quantitative research techniques, methods, approaches, concepts or language into a single study. They explain that mixed methods approach attempts to use multiple approaches to answer research questions without restricting the researcher to a single approach. The mixed methods approach was selected because it assisted in meeting the research objectives of this study better than if each separate method were to be used as echoed by Teddlie and

Tashakkori (2009:33). The mixed methods approach simultaneously addresses confirmatory and exploratory aspects, whilst giving stronger inferences and providing for divergent views unlike the two methods separately. The researcher used financial records (qualitative analysis) to perform statistical analysis using SPSS (quantitative analysis). Panel data analysis and descriptive statistics was used to analyse the data collected from the financial statements of the selected banks. The following line items from both the statement of financial position and the statement of profit and loss, and other comprehensive income were explained in detail both graphically and in form of tables: total assets, total deposits, total equity and liabilities, interest income, interest expense, income (Loss) before taxation, net income/(Loss) after taxation, and net income/(Loss) have been explained.

3.3 Sampling design

In order to analyse capital structure and regulatory capital optimally, the desired sample contains a sample of commercial and merchant banks. In particular, ten banks in Zimbabwe, comprising five listed banks and five banks that went bankrupt for the periods between 2010 and 2014. The top five banks in the world were analysed and compared against the Zimbabwean listed banks. The top international banks were selected based on total assets as at 31 December, 2014.

The Zimbabwean listed banks were selected as at 31 December, 2014 and are assumed to have been in existence at the start of the selection period (i.e. 2010). The use of current data ensured applicability of findings to the current phenomenon. The listed banks were Barclays Bank of Zimbabwe Limited; CBZ Holdings Limited; FBC Holding Limited; NMBZ Holdings Limited; and ZB Financial Holdings Limited.

The failed banks are also displayed in the table below. The reason for including the defaulted banks and international banks was to serve as a basis for comparison.

Table 10: Failed banks (RBZ Monetary Policy Statements and Supervision Reports: 2012)

Year	Institution	Cause of collapse
1998	United Merchant Bank	Failure of corporate governance
2002	Universal Merchant Bank	Failure of corporate governance
2002	Zimbabwe Building Society	Failure of corporate governance
2003	First National Building Society	Failure of corporate governance
2004	Rapid Discount House	Failure of corporate governance
2004	Barbican Bank	Failure of corporate governance
2004	Time Bank	Failure of corporate governance
2004	Intermarket Bank	Failure of corporate governance
2006	Royal Bank	Failure of corporate governance
2006	Trust Bank	Failure of corporate governance
2012	Genesis Inv Bank	Failure of corporate governance
2012	Interfin Bank	Failure of corporate governance
2012	Renaissance	Failure of corporate governance
2012	Royal Bank	Failure of corporate governance
2012	Barbican Bank	Failure of corporate governance

Source: RBZ Monetary Policy Statements and Supervision Reports

The five defaulted banks were selected from a sample of over ten banks based on total assets. Data was obtained from the Reserve Bank of Zimbabwe's website. The Central Bank prepares annual reports that collate all the banks' financial statements, with comparatives for two years. Ideally, since the study focuses on figures from 2010 to 2014, figures were selected within that range. Figures for 2010, 2011, and 2012 were available. However, data for 2013 and 2014 were eliminated because most banks that had already failed no longer had financial statements. Therefore, figures from 2010 were used to select the top five banks in terms of total assets. Information for banks such as United Merchant Bank; Universal Merchant Bank; Zimbabwe Building Society; First National Building Society; Rapid Discount House; Barbican Bank; Time Bank; and Intermarket Bank were no longer available on the website, therefore, they were excluded.

The table below shows the top five defaulted banks in terms of total assets, as at 2010.

Table 11: Top five defaulted banks in terms of total assets

Name of bank	Total assets (\$)
Interfin Bank	175,076,490.07
Kingdom Bank	150,983,080.17
Renaissance Bank	115,033,385.67
Tetrad Investment Bank	48,111,631.64
Zimbabwe Allied Banking Group	16,670,604.24

Source: compiled by the researcher from the firm financial statements

Table 12: Top five international banks in terms of total assets (www.bankrate.com:2016)

Name of bank	Total assets (\$) millions
Industrial and Commercial Bank of China	3,616.39
China Construction Bank Corporation	2,939.15
Agricultural Bank of China	2816.10
Bank of China	2,629.31
HSBC Holdings	2,570.00

Source: compiled by the researcher from the firm financial statements

Four of the five top international banks are Chinese and were presented in RMB currency (Chinese Yuan Renminbi). HSBC financial statements were already presented in USD\$. For comparability, the RMB were translated to USD\$ using historic rates. The historic rates used were as follows: 2010-0.1500; 2011-0.1570; 2012-0.1606; 2013-0.1641; 2014-0.1626. However, since the selected years for the analysis were five years (2010 to 2014) some of the closed banks had less occurrences because they were closed before 2014. The financial statements for 2010 were not available for all the banks as well. Therefore,

the occurrences per bank for the top five international banks, Zimbabwean listed banks, and the defaulted banks were as follows:

Table 13: Number of occurrences per bank (compiled by researcher)

Name of bank	Number of years
Top international banks	25
Industrial and Commercial Bank of China	5
China Construction Bank Corporation	5
Agricultural Bank of China	5
Bank of China	5
HSBC Holdings	5
Zimbabwe listed banks	20
Barclay Bank of Zimbabwe Limited	4
CBZ Holdings Limited	4
FBC Holding Limited	4
NMBZ Holdings Limited	4
ZB Financial Holdings Limited	4
Zimbabwe defaulted banks	17
Kingdom Bank	4
Tetrad Investment Bank	4
Zimbabwe Allied Banking Group	3
Renaissance Bank	3
Interfin Bank	3
Total number of occurrences	62

Both listed and unlisted banks were selected in order to make the investigation and outcomes more valid and as a representation of the universal banking community. In addition, eight commercial banks and two merchant banks made up the sample. The inclusion of specific types of banks enables one to examine if the determinants of capital structure differ across bank types. Therefore, pooling the cross-sectional data, for five years from 15 banks resulted into 75 observations in the analysis. However, due to some of the banks having been closed before 2014, as well as non-availability of data for some years, the total number of occurrences were reduced to 62. Therefore, the panel is balanced since the time periods are the same. Hurlin (2010:5) explains that a balanced panel is one that has the same time periods. The selected listed banks are: Barclay Bank of Zimbabwe Limited; CBZ Holdings Limited; FBC Holding Limited; NMBZ Holdings Limited; and ZB Financial Holdings Limited, while defaulted banks include: Kingdom Bank Limited; Tetrad Investment Bank; Renaissance Bank; Zimbabwe Allied Banking Group (ZABG); and Interfin Bank. International banks include: Industrial and Commercial Bank of China; China Construction Bank Corporation; Agricultural Bank of China; Bank of China; and the HSBC.

3.4 Data source and collection

Data was collected through documents review. For the banks listed on the Zimbabwe Shares Exchange (ZSE), the audited annual financial statements were collected on the ZSE website. The ZSE is a reliable source of data as it is regulated by the Securities Commission, the overall regulatory body which enforces rules of the Exchange. For the collapsed banks, data was collected from the Reserve Bank of Zimbabwe's (RBZ) website. The RBZ contains accurate and comprehensive information on all the banks in Zimbabwe. According to the Banking Act of Zimbabwe (Chapter 24:20) and Statutory Instruments (205 of 2000) RBZ provides for the continuous monitoring and supervision of banks in Zimbabwe, among other things. The RBZ publishes annual reports that contain both financial and non-financial information for all the banks in Zimbabwe.

3.5 Method of data analysis

A combination of panel data analysis and descriptive statistics was employed to examine the relationship between the firm capital structure and the explanatory variables. Correlation analysis was also carried out as well as financial statement analysis. Quantitative analysis has become an increasingly important way of analysing financial data. Quantitative techniques are now regarded as an effective way of providing solutions to management problems (Richard and Charles, 1992:11). Data were regressed using SPSS (Statistical Package for the Social sciences) version 22 application software and the regression outputs were analysed. SPSS is one of the most popular statistical packages, which can perform highly complex data manipulation and analysis with simple instructions. In addition, Ms Excel 2016 was also used to compute and feed formulae into SPSS. The data analysis process employed the data analysis techniques discussed below:

3.5.1 Descriptive statistics

Descriptive statistics is a form of quantitative analysis of data. According to Zikmund (2003:1), descriptive statistics convert data into a format that is easier to analyse, interpret and understand. The Business Dictionary (2016) defines descriptive statistics as, “mathematical quantities that summarize and interpret some of the properties of a set of data but do not infer the properties of the population from which the sample was drawn”. Therefore, descriptive statistics simply summarises a set of data. It helps to simplify large amounts of data simplistically without reaching to conclusions extending beyond the data given. Below is an indication of how descriptive statistics can be employed according to Pallant (2009;29).

- A description of the characteristics that make up the sample.
- A check of whether the variables are compliant with the techniques to be used in answering the research questions.
- Descriptive statistics can also be used to address the research questions.

The descriptive statistics that are covered in this study include: 1) the distribution; 2) the central tendency; and 3) the dispersion. These are explained briefly below:

Measures of central tendency

According to Investopedia(2010), measures of central tendency describe the centre position of a distribution for a data set. Analysing the data set is done and described using the mean, median or mode.

The sample mean

The sample mean, which is calculated as the sum of all data observations divided by the number of the observations, is widely known as the arithmetic average of the sample or observations.

The median

The median of a data set is the observation that is in the middle of the data. If the data set consists of an equal number of observations, then the median is calculated by averaging the two middle observations.

The mode

Refers to the most frequently occurring value and is mostly useful in describing ordinal or categorical data.

3.5.2 Measures of dispersion

According to Boslaugh (2012:5), measures of dispersion refer to how variable or spread out data values are. Therefore, these are sometimes referred to as measures of variability. According to Investopedia (2010), measures of variability, or spread, aid in analysing how spread-out the distribution is for a set of data. The common measures of variability or dispersion are the variance, standard deviation and range.

The minimum, maximum, and the range

The minimum is the smallest observation in a data set whilst the maximum is the biggest value in a data set. The difference as calculated between the smallest and largest observations is called the range.

Variance

Variance is calculated as the average of the squared deviations from the mean of a data set.

Standard deviation

The standard deviation of a data set is the square root of the variance of the data set.

3.5.3 The distribution

According to Boslaugh (2012), the distribution is a function showing all the possible values of the data and how often they occur. The most common type of distribution is the normal distribution (i.e. bell-shaped curve).

3.5.4 Panel data

Panel data analysis is used to analyse the impact of the firm's specific variables on capital structure. Panel data analysis has several advantages. Authors such as Baltagi (2005:4) and Hsiao (2007:4) highlight various advantages, which include:

- i. an increase on the degrees of freedom;
- ii. deals with the collinearity issue among the explanatory variables (decreases it);
- iii. allows for more efficient estimates; and
- iv. it also allows the researcher to follow a group of individuals repeatedly over time, which is obviously not possible with just a single cross-section or time series. More specifically, panel data allows to control for individual heterogeneity, gives more variability and informative data, and is better able to study the dynamics of adjustment.

The three most critical assumptions related to pooled-cross sectional data are tested and the results analysed. The tests are normality, multicollinearity, and heteroscedasticity. These assumptions were required to be tested because the estimation technique has a number of desirable properties.

3.5.5 Correlation analysis

Correlation analysis is the process of studying the strength of a relationship between two variables with available statistical data. In this research, SPSS was used to determine whether or not a relationship between leverage and the six chosen explanatory variables exists. Correlations between the explanatory variables are also discussed.

The correlation coefficient is a degree of linear relationship between two variables. Values of the correlation coefficient range between -1 and +1. A correlation coefficient of +1 indicates that two variables are perfectly correlated in a positive linear sense; while a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense. A correlation coefficient of 0, on the other hand, indicates that there is no linear association between the two variables.

The sample correlation coefficient is the square root of the coefficient of determination and it measures only the degree of linear association between two variables. The analysis of the relationship between dependent variable (leverage) and independent variables profitability (PR), tangibility (TN), size (SZ), growth (GR), and volatility (VOL) are detailed in Chapter 4, using the correlation matrices.

3.5.6 Financial statements analysis

The financial statements for the 15 banks for five years were analysed. Major line items such as the interest income, deposits, and net income are explained in detail. Performance of the banks was also assessed using the most important ratios for the banking industry such as Capital Adequacy Ratio (CAR).

3.6 Model specification

Quite a number of recent empirical studies, namely, Anarfo (2015); Chidoko and Hove (2012); and Mutenheri and Munangagwa (2015), have employed panel data analysis. A panel data approach is gaining more attention by researchers, since it allows the researcher to follow a group of individuals repeatedly over time, which is obviously not possible with just a single cross-section or time series. The availability of repeated observations on the same individuals makes the introduction of more complicated and

realistic models feasible (Verbeek, 2009:355). Proxies for the determinant factors were used to explain the variation in leverage ratios across firms.

Before model specification, tests on the data were done to ensure that the data gives reliable results, and to ensure that the model was fit for the data analysis. The tests that were done include: tests of normality, multicollinearity, heteroscedasticity, model specification, independence, and outliers' detection. The results were presented in the form of graphs and tables.

The test of normality is applied to determine whether data is well modelled by a normal distribution or not, and to compute how likely an underlying random variable is to be normally distributed. There are two methods of assessing normality – graphically (histogram/dot plot) and numerically (Shapiro Wilk test). Graphically, normality can be tested by using the output of a plot. The data points should be close to the diagonal line for them to be normally distributed. The bell-shaped black line on a histogram represents the "normal" curve.

Heteroscedasticity occurs when variance of the error is not constant. The test results were presented graphically and interpreted. A conclusion of whether or not the disturbance terms are homoscedastic or heteroscedastic was made.

Outliers may be due to chance, measurement error or experimental error. An outliers test gives the probability that an observation is from a different population. Outliers are extreme values as compared to the rest of the data and are defined by the size of the residual in an OLS regression where all of the observations are used. An outlier was defined as any value that is 3 standard deviations away from the mean. The independence test determines whether or not there is a significant association between two variables.

Model specification is defined by Allen (1997:167) as, "The determination of which independent variables should be included or excluded from a regression equation." Specifying the model involves selecting the theoretical function form of the model and choosing the variables to include. Once the theoretical formula had been estimated, the stepwise regression method was used to build the model by choosing the variable(s) with greater correlation to leverage. Stepwise regression is the process of building a model by

successively adding or removing variables based on the t-statistics of their estimated coefficients. It is useful for sifting through a large number of potential independent variables.

The theoretical linear regression model is expressed as follows:

$$Y = \beta_0 + \beta_1(\text{PR}) + \beta_2(\text{TN}) + \beta_3(\text{SZ}) + \beta_4(\text{VOL}) + \beta_5(\text{GR}) + \varepsilon$$

Where:

β_0 = the coefficient of intercept (constant)

β_1 = the coefficient of profitability

β_2 = the coefficient of tangibility

β_3 = the coefficient of size

β_4 = the coefficient of volatility of assets

β_5 = the coefficient of growth

ε = the error term

Dependent variable

Y=signifies leverage and is computed as total debt to total assets.

Independent variables

PR=denotes profitability. It is calculated as operating income over total assets.

TN= denotes tangibility. It is calculated as fixed assets divided by total assets.

SZ=denotes size. It is calculated as the natural algorithm of total assets.

VOL=denotes volatility of assets. It is calculated as the standard deviation of total assets.

GR=denotes growth. It is calculated as the percentage change of total assets.

3.7 Definition and measurement of variables

Various capital structure theories emerged from research after the MM irrelevancy theory, for example, the pecking order theory, the agency theory, and the trade-off theory. Scholars such as Harris and Raviv (1991) as well as Rajan and Zingales (1995) suggest

a large range of variables to explain a firms' capital structure, which is investigated by the use of the dependant variable-leverage. Even though there are a large range of explanatory variables noted from previous research, there is some consensus in the academic circles on which variables serve as indication of evidence for the most applied theories of capital structure. These include size, profitability, growth opportunities, risk, collateral, and dividends. Scholars such as Gropp and Heider (2010) used these variables in their research.

In this study, the researcher has used one dependent variable (Leverage) and five explanatory variables, which are: profitability, tangibility, size, growth, age, and volatility (assets and liabilities).

3.7.1 Dependent variable

The dependent variable is the measure of leverage. Scholars seem to agree on the use of leverage as a dependent variable, though they do not agree on what measure of leverage to be used. Fama and French (2002) along with Frank and Goyal (2003:230) consider debt ratio as a measure of leverage. Similarly, Rajan and Zingales (1995); Booth *et al.* (2001); and Ashenafi (2005) also use debt to equity ratio as a measure of leverage.

There may be an option to use either book or market values for the dependant variable. In this research, the use of book values is preferred, rather than market values. Since the difference between leverage ratios measured by book and market value is due to variations in share prices rather than firm's financing decisions, Asgharian (1997:60) concludes that, "A comparison of the results obtained for leverage ratios based on book and market values of equity indicated that there may be a positive correlation between the market value of equity and the explanatory variables, such as collateral value of assets, manager's shareholding and dividend payments. This finding questions the adequacy of using the market value of equity in the leverage ratio".

Therefore, the researcher concurs with the scholar's argument on the use of book values. It flows from the scholar's argument that the decision to use book values and not market values can influence the capital structure. However, de Jong, et al (2011:) conclude that the choice to use the market value, and not the book value of debt, does not influence

the results. So, there is not a great difference in using the book value or the market value in order to measure the financial leverage. To conclude, the researcher used book values.

$$LEVERAGE = TOTAL DEBT / TOTAL ASSETS$$

3.7.2 Explanatory variables

According to Teddlie and Tashakkori (2009:25), an independent variable is a variable that is presumed to influence or affect a dependent variable. The independent variable is, therefore, varied in a research experiment and causes change in the dependent variable.

Regression analysis may be used to identify the significance of the effect that independent variables have on a dependent variable. In this research, the regression model was used to determine if there is a significant relationship between the dependent variable (leverage) and the five chosen variables (profitability, volatility of assets, tangibility, size, and growth).

The independent variables were selected using the Du Pont analysis and findings from previous scholarly works. Galvinich (2002:11) explains that the Du Pont analysis method serves as a starting point for obtaining valuable information about a firm's performance. Five ratios were identified and these are: 1) financial leverage; 2) return on sales; 3) return on assets; 4) return on equity; and 5) asset turnover.

In addition, the selection of independent variables was influenced by the findings from over ten studies (e.g. Titman and Wessels, 1988; and Harris and Raviv, 1991) to identify the most popular explanatory variables as profitability, size, growth rate, asset structure, MB ratio, tangibility, volatility, and non-debt tax shields.

3.7.3 Profitability

Profitability is a measure of earning power of a firm. According to Anarfo (2015:629), "Profitability is one of the most important determinants of the capital structure of banks in Africa." Gocmen and Sahin (2014:59) explain the importance of profitability-internal funds as one of the three major financing sources, and these depend on the firms' profits.

Wiwattanakantang (1999:386) states that according to the pecking order theory, firms use internal funds before they use external funds thereby reducing their debt ratio. Gocmen

and Sahin (2014:59) concur with the above as they further elaborate that the preference of internal over external funds is because there will not be interest payments on debt, and no dividend payments on equity. Several other authors such as Titman and Wessels (1988); Rajan and Zingales (1995); Jensen (1986); Myers and Majluf and (1984) also observe a negative relationship between profits and leverage.

From the trade-off theory view point, Bauer (2004:5) notes that profitable firms tend to be highly levered because they have more income shield from taxes. Frank and Goyal (2003) add on to the argument stating that the profitable firms can increase the present value of the interest tax shield by increasing leverage accordingly. This, therefore, assumes a positive relationship to leverage. Evidence from empirical studies tends to support the pecking order theory.

Firth (1995) and Hirota (1999) define profitability as the rate of return on assets, while Hall *et al.* (2004) define it as the rate of return on sales. Most empirical literature defines profitability as return on total assets. Profitability is defined by several researchers (Deesomsak, Pescetto and Paudyal, 2004; Degryse, de Goeij and Kappert, 2012) as the earnings before interest, tax and depreciation (EBITD) divided by the total. Frank and Goyal (2009) report that, “most empirical studies in corporate finance have found a positive relation between profitability and equity capital, a result that suggests a rejection of the trade-off theory of capital structure, in particular the agency hypothesis, and a validation of the pecking order theory”.

$$PROFITABILITY = OPERATING INCOME / TOTAL ASSETS$$

3.7.4 Tangibility

Tangibility, under the trade-off theory is defined by Chen and Jiang (2001); Deesomsak *et al.* (2004); and de Jong, Kabir and Nguyen (2008) as the total fixed assets divided by the total assets. Chidoko (2012:7) states that tangibility is one among the measures of asset structure.

Asset tangibility, under the pecking order theory, is defined the same way as tangibility under the trade-off theory is. Antoniou, Guney and Paudyal (2008); Chen (2004); Chen

and Jiang (2001); Delcoursé (2007); and Frank and Goyal (2008) all use the ratio of total fixed assets to total assets.

According to Moyo, Wolmarans and Brummer (2013:664), if a firm has high volumes of tangible assets, it works in the firm's favour since it means that there is increased security for lenders. Because of this, the firm's debt capacity is increased whilst the cost of debt decreases. Firms with more tangible assets, therefore, attract lenders at cheaper rates. The expectation will be that firms with more tangible assets will have higher leverage ratios.

Mutenheri and Green (2002:105) state that, "It is believed that in an uncertain world, with asymmetric information, the asset structure of a firm has a direct impact on its capital structure since a firm's tangible assets are the mostly widely accepted sources for bank borrowing and raising secured debt".

$$TANGIBILITY = TOTAL\ FIXED\ ASSETS / TOTAL\ ASSETS$$

3.7.5 Size

Size may be defined as the measure of how large a firm's operational capacity is. Frank and Goyal (2003:239) argue that larger firms are able to carry more debt than smaller firms because they are more diversified, and this results in lower default risk. The larger firms have less information asymmetry due to lower monitoring costs resulting in outsiders having more information about the firms. Anarfo (2015:628-629) adds that larger firms enjoy economies of scale and scope; they can increase market power, thus, impacting positively on their profitability. Larger firms are also able to increase leverage because their high profits allow them to service the debt. This line of thought is in agreement with the trade-off theory. Larger firms are closely monitored and are better known in the credit market unlike the smaller firms. They are, as a result, able to attract more external financing resulting in higher leverage (Degryse et al., 2012:440).

Another school of thought disagrees with the above perspective. For instance, Rajan and Zingales (1995) in their paper, argue that the size of a firm may act as an inverse proxy for the probability of default. The pecking order theory supports this view implying that

larger firms ought to have lower leverage since equity is subject to lower asymmetric costs.

But researchers tend to agree with the trade-off theory, the implication being that larger banks be more leveraged. Since larger banks have a bigger market share, it is expected that they should have higher financial flexibility. A positive relationship is thus expected between size of a firm and leverage.

According to Mutenheri and Green (2003:81), firm size has been mostly defined as the natural logarithm of either total assets or sales in a number of empirical studies. Mutenheri and Munangagwa (2015) and Mutenheri and Green (2003), among others, have employed the natural logarithm of total assets. According to the above view, the natural logarithm of assets as a proxy for firm size is used.

$$SIZE = \text{Natural Logarithm of } TOTAL\ ASSETS = LN (Total\ Assets)$$

3.7.6 Growth

According to Titman and Wessels (1988:4) growth opportunities are capital assets that add value to a firm. In an organisation, there are agency problems that arise as a result of the conflicts between managers and shareholders. The problems are also evidenced in the types of investments done by managers resulting in under/over investment problems.

Under-investment

Kayo and Kimura (2011:359) state that the under-investment problem occurs when free cash flow is low and the organization has high growth opportunity but does not invest in the positive NPV projects. Conflicts between managers and shareholders, in this case, are less intense. In addition, Kayo and Kimura (2011:359) point that debt may lead to under-investment problems and firms tend to show high levels of equity rather than leverage.

Over-investment

Over-investment occurs when an organisation with low growth opportunities invests in negative NPV projects that do not increase the value of the organisation. Shareholders may respond to this dilemma of overinvestment by issuing debt. This will reduce free cash flow because the debt, including interest, has to be repaid.

The static trade-off theory predicts a negative relationship between growth and leverage, whilst the pecking order theory predicts a positive relationship. Hall *et al.* (2004) argue that retained earnings may not be enough to finance the positive NPV projects for firms with high growth potential, thereby leading to an increase in leverage due to borrowing. In agreement, Heshmati (2001) states that high growth firms require more financing, and therefore, it is inherent that they will have higher leverage. On the other hand, Myers (1977) is of the opinion that firms with future growth opportunities should use equity financing to ensure that they do not pass up any profitable opportunities because of high leverage.

Various scholars define firm growth opportunities variables as the rate of growth of assets and/or gross income (Titman & Wessels 1988; & Badhuri 2002). Bevan and Danbolt (2002); and Ozkan (2001) define growth as the percentage change in total assets. Hove and Chidoko (2012:8) note that highly levered firms tend to pass up profitable investments thus growing firms prefer equity to debt.

$$\begin{aligned} \text{Growth} &= \% \text{ CHANGE IN TOTAL ASSETS}(TA) \\ &= 100\% \times \frac{TA \text{ CURRENT YEAR} - TA \text{ PREVIOUS YEAR}}{TA \text{ CURRENT YEAR}} \end{aligned}$$

3.7.7 Volatility of assets

Bauer (2004:7) defines volatility as the proxy for risk of a firm, i.e. the probability of bankruptcy. Various scholars such as Hsiao (2007); Huang and Song (2002:9); and Kim and Sorensen (1986) observe a positive relationship between volatility and leverage, whereas Bradley *et al.* (1984); and Titman and Wessels (1988) observe a negative relationship.

$$VOLATILITY = STANDARD DEVIATION OF CHANGE IN TOTAL ASSETS OVER 4 YEARS$$

In summary, the following table illustrates the definitions and the formulae used.

Table 14: Summary of dependent and independent variables (various authors)

	VARIABLES	DEFINITION	MATHEMATICAL EXPRESSION
Dependent variable	LEVERAGE	long-term debt ratio	$LEVERAGE = TOTAL DEBT / TOTAL ASSETS$
Explanatory variables	PROFITABILITY	Ratio of Operating income to Total asset	$PROFITABILITY = OPERATING INCOME / TOTAL ASSETS$
	SIZE	Natural Logarithm of Total Assets	$SIZE = \text{Natural Logarithm of } TOTAL ASSETS = LN(Total Assets)$
	TANGIBILITY	Ratio of Tangible (fixed) assets to Total assets	$TANGIBILITY = TOTAL FIXED ASSETS / FIXED ASSETS$
	VOLATILITY	Standard deviation of change in total assets in 4 years	$VOLATILITY = STANDARD DEVIATION OF CHANGE IN TOTAL ASSETS OVER 4 YEARS$
	GROWTH	Percentage increase (change) in total assets	$Growth = \% \text{ change in Total Assets}(TA)$ $= 100\% \times (TA \text{ Current Year} - TA \text{ Previous Yr}) / \text{Current year } TA$

3.8 Conclusion

Chapter 2 laid the foundation for the study by comprehensively reviewing literature, and creating an outline for the study by classifying the important issues in capital structure. Capital structure was defined, and the theories and determinants of capital structure were discussed in detail. Empirical evidence from prior studies were also reviewed for both the developed and developing countries. A brief background to the Zimbabwean banking industry was also given in the chapter. Chapter 2 also addressed the secondary objectives of the study. Chapter 3 then created the foundation for understanding the subsequent empirical analysis in order to achieve the empirical objective of the study. The empirical objective of the study was to determine if the explanatory variables of capital structure that affect the non-financial firms in the developed countries also affect the banking industry in Zimbabwe through empirical study. The goals of this dissertation, which are divided into primary and secondary objectives, were achieved through an empirical study. Firstly, the target population from which the sampling frame was selected has been described in detail. The sample method and size were also discussed. Secondly, the measuring instrument and data collection method(s) were discussed. The dependant and explanatory variables were defined, and critically analysed. Lastly, the statistical analysis methods to be employed were explained in detail. Chapter 4 will discuss the findings from the empirical study in detail. The financial statements of the banks under investigation were also analysed in detail to determine the factors that influence the financing decisions of Zimbabwean banks.

CHAPTER 4

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

Chapter 3 explained in detail the methodology of the empirical part of the study. It detailed the study design, sampling design, source of data, and collection thereof. The method used for data analysis, and the dependent and independent variables were defined. Chapter 4 seeks to achieve the empirical objective as set out in Chapter 1 of the study. It presents the results of the data analysis and the corresponding discussions. Tests of panel data assumptions were done, as well as descriptive statistics, and panel data analysis. The determinants of capital structure in the case of stable Zimbabwean banks are explained and juxtaposed with that of banks that defaulted, as well as the top five international banks. The comparison aims to answer the secondary research objective 3, which seeks to evaluate the impact of financing decisions made by banks within the Zimbabwean banking climate.

4.2 Data testing

Tests on the data are done to ensure that the data gives reliable results and to ensure that the model is fit for the data. A number of tests in that regard were conducted. The tests that were done, as explained in Chapter 3, include: tests of normality, multicollinearity, heteroscedasticity, independence, and outliers' detection. Refer to the graphs, tables, and descriptive statistics below for the model specification criteria.

4.2.1 Tests of normality

Brooks (2008:45) states that if the residuals are normally distributed, the histogram should be bell shaped. This assumes that samples being analysed are drawn from populations that are normally distributed. The histograms presented below in Figure 6, Figure 7, and Figure 8 provide useful graphical representation of the data. From the tests carried out for the three samples, it is noted that for the stable banks listed on the Zimbabwe Shares

Exchange, Figure 7, the curve is skewed to the left (negatively skewed). This is evidence of small values in the data (to the left) causing the mean to be pulled to the right.

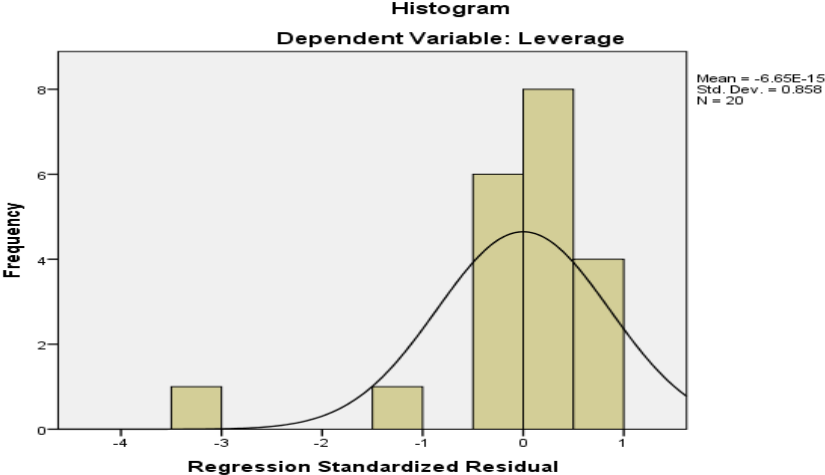


Figure 7: Histogram dependent variable for stable banks

Source: Financial statements of banks and own computations

However, for the top international banks and the defaulted banks, Figure 8 and Figure 9, the bell-shaped black line on the histograms represent the "normal" curve, although it can be seen that there are few outliers, which have insignificant difference from the standard normal curve.

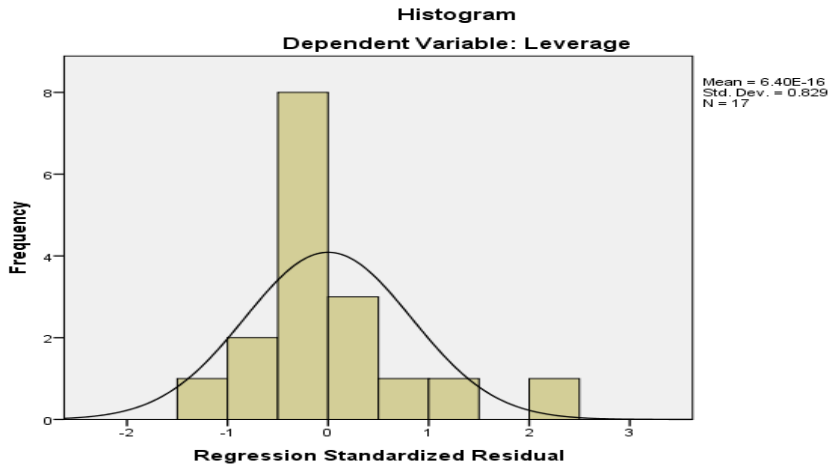


Figure 8: Histogram dependent variable for defaulted banks

Source: Financial statements of banks and own computations

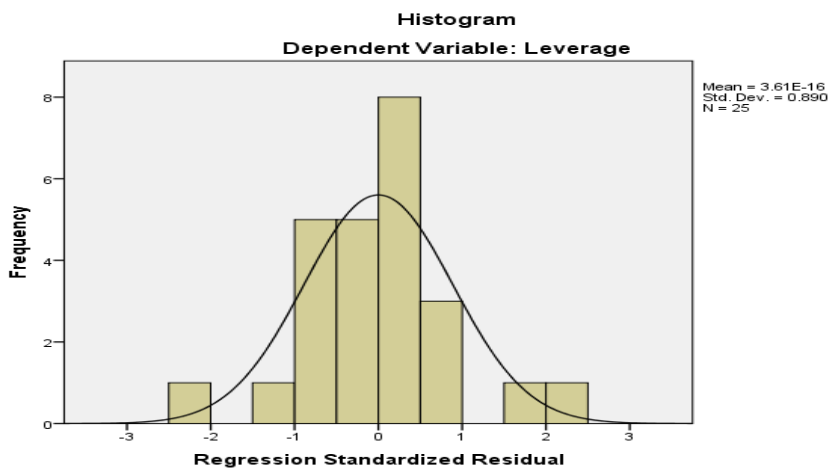


Figure 9: Histogram dependent variable for top international banks

Source: Financial statements of banks and own computations

Therefore, the residuals are normally distributed and do not present potential problems on the specified model.

4.2.2 Tests of multicollinearity

Multicollinearity refers to predictors that are highly correlated with each other. It increases the standard errors of the coefficients. It makes some variables insignificant when they should be significant. Cooper and Schindler (2009:11) suggest that a correlation above 0.8 should be considered as a problem of multicollinearity. In agreement with this argument, Hair (2006:5), states that a correlation coefficient below 9 may not cause serious multicollinearity problem.

Firstly, according to the Figure 10, the correlation for Zimbabwean stable banks show no sign of multicollinearity between the explanatory variables, as none of the correlation coefficients are equal or bigger than 0.8, except for the relationship between size and volatility. However, the given high correlation is acceptable because long-aged firms tend to have high total assets (size). Almost all variables have low correlation power and this implies no multicollinearity problem in the explanatory variables selected to determine capital structure of commercial banks in Zimbabwe. Figure 11 for the defaulted banks also does not have any correlation coefficients above 0.8. However, the top five banks' correlation coefficients between profitability and tangibility; profitability and size; and tangibility and size show correlations above 0.8 as shown in Figure 12. This is also acceptable as they are expected to have high total assets.

The Variable Inflation Factor (VIF) technique is also used to detect the multicollinearity problems. The VIF is calculated for every variable, and

IF $VIF \leq 1$, no multicollinearity

IF $VIF > 1$, moderately correlated

IF $VIF = 5-10$, highly related

IF $VIF > 10$, multicollinearity

For the stable listed banks, size and volatility had VIFs of 12 and 13 respectively. These indicate multicollinearity. The other three variables, namely, profitability, tangibility, and growth had VIFs below 3 of 2, 1 and 1 respectively. The VIFs for the defaulted banks for all the five variables were all below 3, whereas those for the top international banks were all above 3.

Multicollinearity may also be illustrated graphically using a scatter plot graph. If there is a pattern (positive or negative) then it shows that there is no multicollinearity. The plot shows leverage against the independent variables. If a line of fit was to be drawn across the dots, a positive relationship will be evident, with a few outliers, see figures 10, 11 and 12.

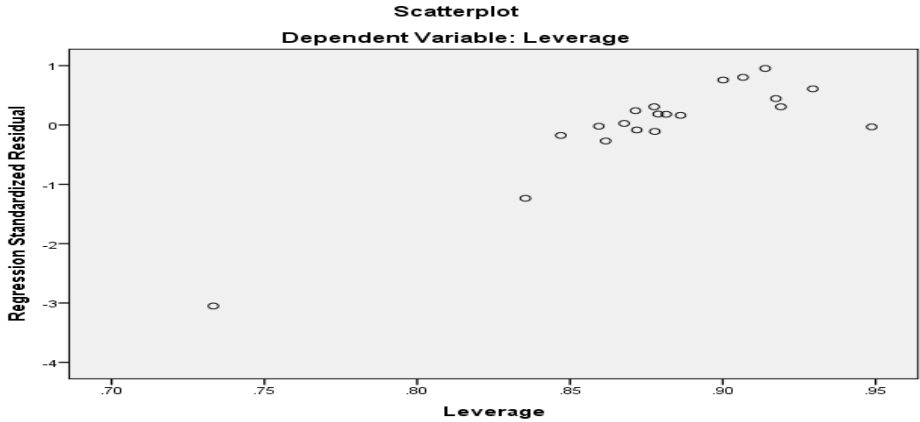


Figure 10: Partial regression plot for stable banks

Source: Financial statements of banks and own computations

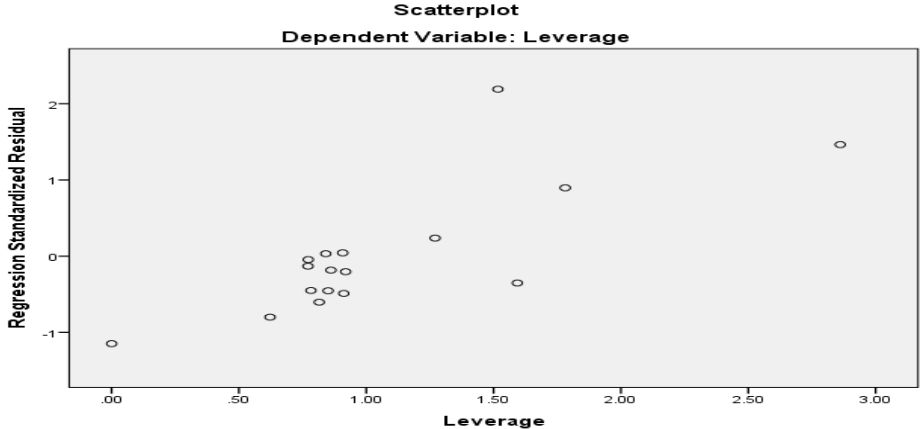


Figure 11: Partial regression plot for defaulted banks

Source: Financial statements of banks and own computations

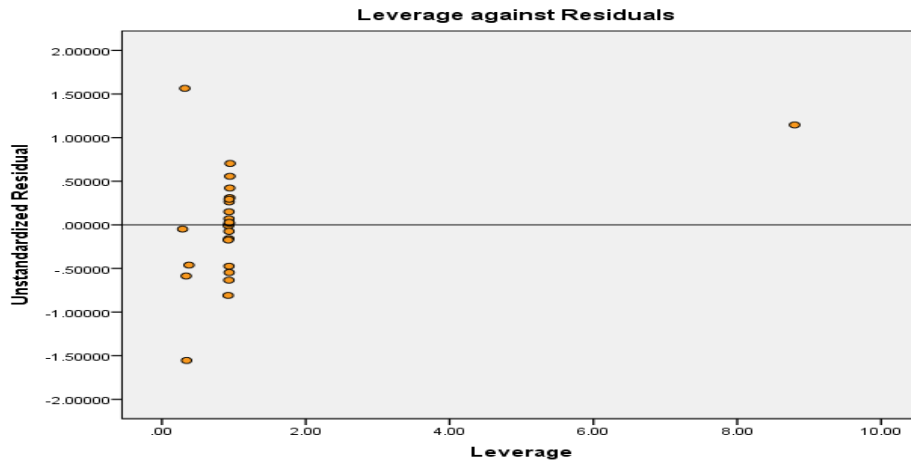


Figure 12: Partial regression plot for top international banks

Source: Financial statements of banks and own computations

4.2.3 Tests of heteroscedasticity and outliers' detection

Heteroscedasticity occurs when the variance of the error is not constant. Figure 13 to 15 below can be used to explain heteroscedasticity. The dot plots, all follow a pattern and are indicative of homoscedasticity. Heteroscedasticity can also arise as a result of the presence of outliers (Gujarati, 2003:390). From the test of outliers, there were no significant outliers, hence, no heteroscedasticity.

As stated previously in Chapter 3 on model specification, outliers may be due to chance, measurement error or experimental error. An outliers test gives the probability that an observation is from a different population. Outliers are extreme values as compared to the rest of the data, and are defined by the size of the residual in an OLS regression where all of the observations are used. An outlier is defined as any value that is 3 standard deviations away from the mean. Therefore, from the scatterplot, the outlier will not be within the region as indicated by the two lines. Refer to Figure 13 below. The outlier is from NMB in 2013. It can also be concluded that, there are no significant outliers, meaning the residual values do not have extreme negative or positive values. From Figure 14 it can be observed that the defaulted banks had more outlying observations than the stable

banks. The top international banks as displayed in Figure 15 also show one outlier caused by the Bank of China in 2013.

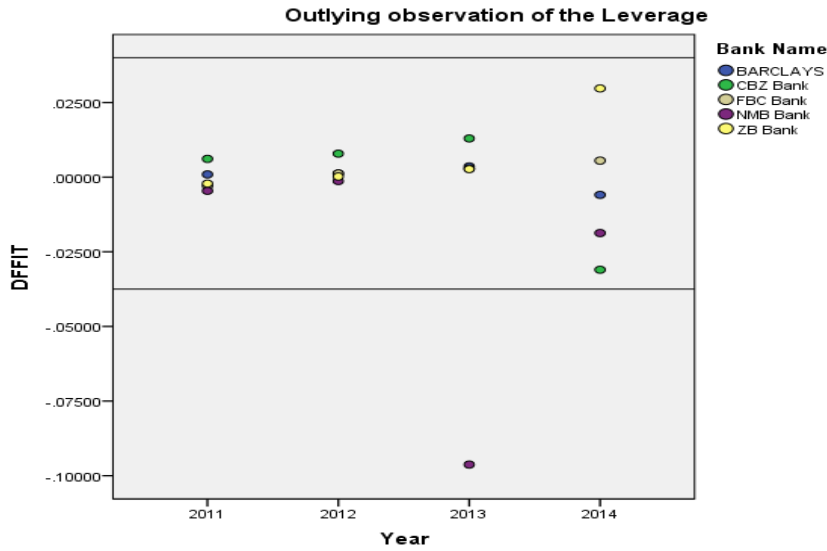


Figure 13: Scatterplot outliers' detection for stable banks

Source: Financial statements of banks and own computations

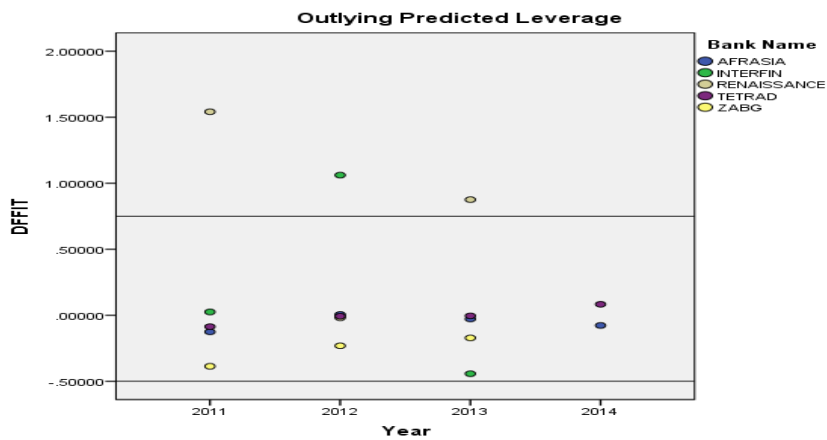


Figure 14: Scatterplot outliers' detection for defaulted banks

Source: Financial statements of banks and own computations

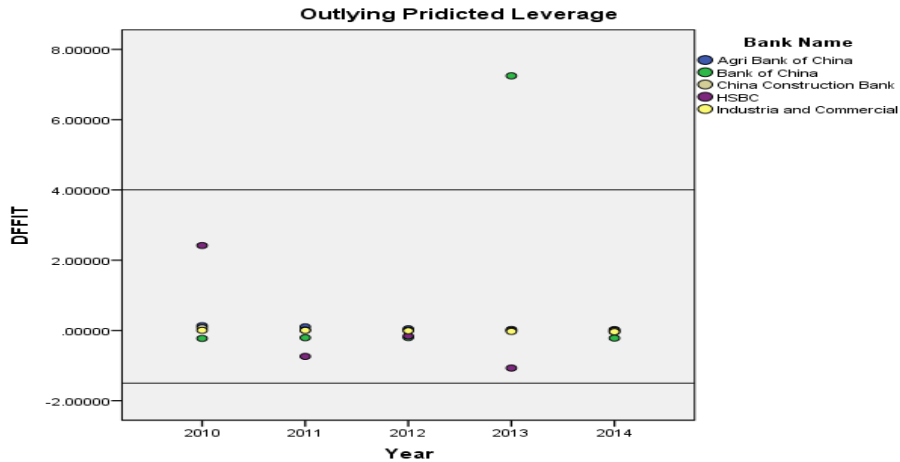


Figure 15: Scatterplot outliers' detection for top international banks

Source: Financial statements of banks and own computations

4.2.4 Test of independence

The test of independence determines whether or not there is a significant association between two variables. In order to test the independence assumption, the Durbin Watson test was used. The test is always between 0 and 4, and a value of 2 or below means that there is no autocorrelation in the sample. From Table 15 and Table 16 below for defaulted banks and top international banks respectively, it is evident that there is no problem of independence since the Durbin Watson test result is below 2. However, the result for stable banks listed on the Zimbabwe Shares Exchange, as shown in Table 14, shows an insignificant independence problem since the Durbin Watson test result is just above 2, but below 4.

Table 15: Test of independence for stable banks

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.485 ^a	.235	-.038	.04559	2.728

Source: *Financial statements of banks and own computations*

a. Predictors: (Constant), Volatility, Tangibility, Growth, Profitability, Size

b. Dependent Variable: Leverage

Table 16: Test of independence for defaulted banks

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.646 ^a	.418	.153	.56890	1.774

a. Predictors: (Constant), Volatility, Tangibility, Growth, Profitability, Size

b. Dependent Variable: Leverage

Table 17: Test of independence for top international banks

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
1	.920 ^a	.846	.806		.71241	1.646

a. Predictors: (Constant), Volatility, Tangibility, Growth, Profitability, Size

b. Dependent Variable: Leverage

Source: Financial statements of banks and own computations

Tests on the data were done to ensure that the data gave reliable results and to ensure that the model is fit for the data analysis. The tests that were done, as explained in Chapter 3, include: tests of normality, multicollinearity, heteroscedasticity, independence, and outliers' detection. From the above tests, it can be concluded that the data gave reliable results and the model is fit for the data analysis.

4.3 Analysis of data

As discussed in Chapter 3, data analysis was employed to examine the relationship between firms' capital structure and the independent variables. Correlation analysis, descriptive statistics, panel data analysis, and financial statement analysis were employed. The results are presented in the following sections.

4.3.1 Correlation analysis

Correlation analysis is a statistical measure that measures the strength of relationships between two variables. The correlation coefficient is a measure of linear association between two variables. The value of correlation coefficients ranges from -1 to +1, with -1 indicating a perfect negative relationship, 0 no linear relationship, and +1 a perfect positive relationship. The correlation coefficient is the square root of the coefficient of determination and measures only the degree of linear association between two variables. The analysis of the dependent variable (leverage) and the independent

variables (profitability, tangibility, size, growth, and volatility of assets) is detailed below in tables 17 to 19.

Table 18: Correlations for stable banks

		Leverage	Size	Profitability	Tangibility	Growth	Volatility
Pearson Correlation	Leverage	1.000	.186	-.002	.351	.168	.247
	Size	.186	1.000	.029	-.195	.101	.916
	Profitability	-.002	.029	1.000	-.266	.140	.292
	Tangibility	.351	-.195	-.266	1.000	-.064	-.155
	Growth	.168	.101	.140	-.064	1.000	.201
	Volatility	.247	.916	.292	-.155	.201	1.000
Sig. (1-tailed)	Leverage	.	.216	.497	.064	.239	.147
	Size	.216	.	.451	.205	.337	.000
	Profitability	.497	.451	.	.129	.277	.106
	Tangibility	.064	.205	.129	.	.394	.257
	Growth	.239	.337	.277	.394	.	.198
	Volatility	.147	.000	.106	.257	.198	.

Source: *Financial statements of banks and own computations*

From table 17, it can be deduced that:

- Leverage is positively correlated with size at 0.186 at 5% significance level. The sign supports the trade-off theory and the agency costs theories, which predict a positive relationship between leverage and size. The trade-off theory states that larger firms can borrow at relatively lower rates than smaller firms because of a high level of non-current assets, economies of scale, stable cash flow, and credit

worthiness. Frank and Goyal (2009:8); Mutenheri and Green (2003); and Chidoko and Hove (2012) support the trade-off theory in this regard. It therefore implies that larger banks are more leveraged.

- Profitability is negatively related to leverage at -0.02 at 5% significance level. This supports the pecking order prediction. The more profitable a bank is, the lower the leverage ratio. Wiwattanakantang (1999:386) supports the pecking order theory view, that high profit firms should have a smaller debt ratio because firms use internal funds first before external funds.
- Tangibility is positively correlated to leverage at 0.351 at 5% significance level. This supports the pecking order, agency costs, and trade-off theories predictions. The higher the amount of collateral the bank holds, the higher the leverage. From the studies done by Berger and Udell (1998), it is also suggested that bank funding will depend on whether or not its lending can be secured by tangible assets.
- Growth is positively correlated to leverage at 0.168 at 5% significance level. The pecking order theory predicts a positive relationship between growth and leverage, and suggests that firms with more investments should accumulate more debt over time, thus, growth opportunities and leverage are positively related.
- Volatility of assets is positively correlated to leverage at 0.247 at 5% significance level. This is in line with the pecking order theory.

From the results, it is evident that two explanatory variables (tangibility and volatility of assets) have a relatively higher relationship (negatively or positively) with dependent variable of the selected banks. The results also show that size, growth, volatility of assets, and tangibility are positively related to leverage, whilst profitability is negatively related to leverage at -2%. The relationship between size and volatility of assets is very significant at 91.6%.

The correlations for defaulted banks and top international banks were also analysed. Refer to Table 18 and 19 for the results. The results for the two samples were compared to the results for stable banks as indicated above. The relationship between leverage and profitability was negative in Table 17 above. The same result was found for defaulted banks (at -47.6%) in Zimbabwe.

However, the top international banks showed a positive profitability of 24.6%. The relationship between leverage and size for stable banks is positive. This finding is contrary to findings from both the defaulted banks and top international banks, which showed a negative relationship of -47.8% and -14.55% respectively. Leverage and growth is positive for stable listed banks. This result is consistent with that of defaulted banks (32.5%), whilst that for top international banks, is negative (-81.5%). Tangibility and leverage showed a positive relationship, which is consistent with the defaulted banks (26.5%), and in contrast to top international banks (-13.6%). Lastly, leverage and volatility showed a positive relationship, in line with the results from the defaulted banks (7.4%) and the top international banks (41.8%).

Table 19: Correlations for defaulted banks

		Leverage	Size	Profitability	Tangibility	Growth	Volatility
Pearson Correlation	Leverage	1.000	-.478	-.476	.265	.325	.074
	Size	-.478	1.000	.743	-.538	-.012	.239
	Profitability	-.476	.743	1.000	-.464	.135	-.109
	Tangibility	.265	-.538	-.464	1.000	.174	-.294
	Growth	.325	-.012	.135	.174	1.000	-.115
	Volatility	.074	.239	-.109	-.294	-.115	1.000
Sig. (1-tailed)	Leverage	.	.026	.027	.152	.101	.388
	Size	.026	.	.000	.013	.482	.178
	Profitability	.027	.000	.	.030	.302	.339
	Tangibility	.152	.013	.030	.	.253	.126
	Growth	.101	.482	.302	.253	.	.330
	Volatility	.388	.178	.339	.126	.330	.

Source: Financial statements of banks and own computations

Table 20: Correlations for top international banks

		Leverage	Size	Profitability	Tangibility	Growth	Volatility
Pearson Correlation	Leverage	1.000	-.145	.246	-.136	-.815	.418
	Size	-.145	1.000	-.969	-.919	.075	.638
	Profitability	.246	-.969	1.000	.907	-.205	-.625
	Tangibility	-.919		.907	1.000	.193	-.784
	Growth	.075		-.205	.193	1.000	-.303
	Volatility	.638		-.625	-.784	-.303	1.000
Sig. (1-tailed)	Leverage	.	.244	.118	.258	.000	.019
	Size	.244	.	.000	.000	.361	.000
	Profitability	.118	.000	.	.000	.162	.000
	Tangibility	.258	.000	.000	.	.178	.000
	Growth	.000	.361	.162	.178	.	.070
	Volatility	.019	.000	.000	.000	.070	.

Source: Financial statements of banks and own computations

In conclusion, the correlation analysis shows that for the stable banks listed on the ZSE, size, tangibility, growth, and volatility of assets are positively related to leverage; whilst profitability is negatively related to leverage. The defaulted banks show the same trend for the independent variables, except for size, which is also negatively related to leverage. The top international banks show rather different results.

Size, tangibility and growth are negatively related to leverage, whilst profitability and volatility of assets are positively related to leverage.

4.3.2 Descriptive statistics

Tables 20 to 22 show the summary of descriptive statistics for the variable values used in the sample. These (summary of descriptive statistics) include the mean, standard deviation, minimum, and maximum of one dependent variable (leverage) and five explanatory variables (PR, TN, SZ, GR, VOL) from year 2010 – 2014 for three sets of data:

- 1) stable banks listed on the ZSE;
- 2) defaulted banks; and
- 3) top international banks.

A brief discussion of each of the descriptive statistics follows.

The mean is defined as the sum of the observations divided by the total number of observations. The median is the middle value of the total observation. The standard deviation is the squared root of the variance and shows how near the data is to the mean. The variance measures the dispersion of the data from the mean. It is the simple mean of the squared distance from the mean. Count (N in the table) refers to the number of observations per variable. Range is the difference between the largest and smallest values. Min is the lowest value in the variable. Max is the largest value in the variable.

4.3.2.1 Descriptive statistics for the independent and dependent variables

Table 21: Descriptive statistics for stable banks

	N	Range	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Leverage	20	.22	.73	.95	.8792	.01001	.04474
Size	20	2.29	5.13	7.42	5.9517	.14966	.66931
Profitability	20	.05	-.02	.03	.0128	.00269	.01204
Tangibility	20	.97	.03	1.00	.1131	.04724	.21126
Growth	20	.59	-.20	.39	.1465	.03177	.14209
Volatility	20	9.36	1.01	10.36	3.4757	.80335	3.59267

Source: Financial statements of banks and own computations

- The average (mean) for leverage of Zimbabwean banks is found to be 88% and this indicates that the banks are financed (leveraged) with debt at approximately eight times greater than equity. That is, the banks' financing decision is inclined to deposit mobilisation rather than to the equity financing. The leverage for the banks ranges from 73.3% to 95%. These findings are in agreement with international research findings. From the study of international banks by Gropp and Heider (2008), the findings indicate that the median (book leverage) is 93% (87% for market leverage), which is evident that banks are highly levered firms in comparison with non-financial firms, which had book and market leverages of 24% and 23% respectively (Goyal, 2004). It is expected that banks are highly levered. In order to avoid the adverse effects of inflation, banking operations should rather be conducted from borrowed funds than own funds.

The average annual profitability of the banks under investigation is found to be 0.12%. Since profitability was measured by the ratio of operating income to total assets, the maximum attained average profitability rate is 0.3% whereas the lowest recorded average profitability rate is -0.02%. A positive average profitability ratio, close to zero, indicates that Zimbabwean banks appear to be under severe stress. They find it difficult to earn a reasonable positive return on invested assets.

The mean for asset composition (tangibility) is found to be 11.31% of the total assets. Due to the nature of the business, banks have high current assets, which is equal to approximately 88.69%.

The banks' total assets have an average growth rate of 14.65% for the four years of the study period. The minimum growth for the period was -20% whilst the maximum was 39%.

The mean for the banks' volatility of assets, calculated as the standard deviation of change in total assets is 348%. The minimum for the period is 101% whilst the maximum is 1036%.

The results were compared with the descriptive statistics for the defaulted banks as well as the top international banks. Refer to Table 21 and 22 below for the results. Leverage for defaulted banks and top international banks are 106% and 113% respectively. This shows that banks are also highly levered. This is consistent with the findings for the stable listed banks, although the percentage is lower at 88%. Size is also high for both the defaulted banks and the top international banks at 442% and 1392% respectively. Profitability for the defaulted banks is negative (-13%), whilst that for top international banks is positive (3.8%). Tangibility is positive for all three samples; 18.2% for defaulted banks, and 6% for top international banks. Growth is also positive for all three samples; 48% for defaulted banks, and 33% for top international banks. Volatility of assets is also positive for all three samples; 3000% for defaulted banks, and 40000% for top international banks.

Table 22: Descriptive statistics for defaulted banks

	N	Range	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Leverage	17	2.86	.00	2.86	1.0633	.14995	.61824
Size	17	2.50	2.86	5.36	4.4166	.18204	.75057
Profitability	17	.83	-.52	.31	-.1318	.04951	.20413
Tangibility	17	.49	.02	.51	.1820	.04132	.17036
Growth	17	6.22	-2.48	3.74	.4800	.34549	1.42451
Volatility	17	36.77	13.43	50.20	30.2518	3.40169	14.02552

Source: Financial statements of banks and own computations

Table 23: Descriptive statistics for top international banks

	N	Range	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Leverage	25	8.51	.29	8.80	1.1283	.32329	1.61645
Size	25	3.28	11.69	14.97	13.9291	.23771	1.18853
Profitability	25	.14	.01	.14	.0384	.00942	.04709
Tangibility	25	.33	.01	.34	.0599	.02080	.10400
Growth	25	12.87	-7.46	5.41	.3287	.40289	2.01444
Volatility	25	738163.93	14119.74	752283.67	408422.8494	47897.77056	239488.85281

Source: Financial statements of banks and own computations

4.3.2.2 Descriptive statistics: financial statements analysis

Descriptive statistics for the financial statement items were also analysed. Refer to tables 23 to 25 for the results. The line items analysed are total assets, total deposits, interest income, interest expense, and income before and after taxation. The mean, range, minimum, maximum, and standard deviation are analysed.

Table 24: Descriptive statistics financial statements for stable banks

Descriptive Statistics (in millions)							
	N	Range	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Total Assets	20	\$1,498	\$168	\$1,666	\$500.48	\$102.046	\$456.364
Total Deposits	20	\$933	\$0	\$933	\$283.54	\$56.562	\$252.953
Interest Income	20	\$164	\$7	\$171	\$48.40	\$11.146	\$49.847
Interest Expense	20	\$100	\$1	\$101	\$22.05	\$5.913	\$26.442
Income (Loss) before Taxation	20	\$42	-\$1	\$41	\$9.85	\$2.692	\$12.038
Net Income / (Loss) after Taxation	20	\$30	\$0	\$30	\$7.16	\$1.958	\$8.757

Source: Financial statements of banks and own computations

The sample mean is widely known as the arithmetic average of the sample or observations. The mean for total assets is USD\$500 million and is the highest mean compared to the other line items. The lowest mean is net income/(loss) for the year, which is USD\$7.16 million.

As has been previously explained, the minimum is the smallest observation in a data set and the maximum is the biggest value in a data set. The difference between the smallest and largest observations is called the range. The minimum for assets is \$168 million, whilst the maximum is \$1.666million. Therefore, the range is \$1.498. This is evidence that the difference between the smallest and largest observations (the range) is very large. CBZ is the biggest bank with total assets of an average of USD\$1,340,546,387.40, whilst Tetrad's is USD\$95,740,070.59, which is 14 times less than that of CBZ.

CBZ is the top performing bank in Zimbabwe and is one of the five listed banks selected for analysis. It is noted from the table that some banks make a loss before and after taxation. The minimum for income/(loss) before and after tax is -\$2 and -\$0 respectively. The maximum for income/(loss) before and after tax is \$41 and \$30 respectively, indicating a range of \$42 and \$30 respectively. This indicates that most of the stable listed banks are performing rather well, posting profits; while a few are posting losses although not significantly so.

The descriptive statistics for the listed banks were juxtaposed with those for the defaulted banks as well as the top international banks. It is noted that the mean total assets for the defaulted banks is 4.8 times less than that for the stable banks that are listed on the ZSE. The mean total assets for the defaulted banks is 103.9 (refer to Table 24), as compared to 500.48 for stable banks. The mean total assets for the top international banks (1 696 460, see Table 25) is over 3000 times more than that for listed banks. This shows that the top international banks hold more assets as compared to the Zimbabwean listed banks. Interest income is the main income driver for banks. It is noted that the top international banks earn 1725 times more interest income than the banks listed on the ZSE. The defaulted banks however, earned 4.4 times lesser interest income than the listed banks. The total deposits for top international banks is 3605 more than those for the listed banks, while the total deposits for defaulted banks is five times less than that of the listed banks.

Nett income after tax for the top international banks is 3594 more than those for the listed banks, while the total deposits for defaulted banks is 1.5 times lesser than that of the listed banks. Both the top international banks and stable listed banks have profit after tax

unlike the defaulted banks, which show a negative income after tax. The findings show that the international banks and stable banks have positive mean profitability as well as mean profit after tax, while the defaulted show both the mean profitability and mean profit after tax in the negative.

Table 25: Descriptive statistics of financial statements for defaulted banks

	N	Range	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Total Assets	17	\$196	\$17	\$213	\$103.90	\$15.513	\$63.960
Total Deposits	17	\$124	\$0	\$124	\$55.41	\$9.064	\$37.371
Interest Income	17	\$27	\$1	\$28	\$10.93	\$2.346	\$9.675
Interest Expense	17	\$29	-\$17	\$12	\$0.29	\$1.914	\$7.892
Income (Loss) before Taxation	17	\$87	-\$28	\$59	-\$5.93	\$4.644	\$19.149
Net Income / (Loss) after Taxation	17	\$86	-\$27	\$59	-\$4.61	\$4.452	\$18.357

Source: Financial statements of banks and own computations

Table 26: Descriptive statistics of financial statements for top international banks

Descriptive Statistics (in millions)							
	N	Range	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Total Assets	25	\$3,059,135	\$119,341	\$3,178,476	\$1,696,460.04	\$197,496.411	\$987,482.056
Total Deposits	20	\$2,589,309	\$79,389	\$2,668,698	\$1,023,928.90	\$219,414.000	\$981,249.237
Interest Income	25	\$91,128	\$47,021	\$138,149	\$83,474.52	\$5,311.738	\$26,558.692
Interest Expense	25	\$42,273	\$57,926	\$15,653	\$32,923.56	\$2,586.050	\$12,930.251
Income (Loss) before Taxation	25	\$40,673	\$18,107	\$58,780	\$33,350.52	\$2,371.479	\$11,857.396
Net Income / (Loss) after Taxation	25	\$30,720	\$14,191	\$44,911	\$25,736.16	\$1,813.161	\$9,065.805

Source: Financial statements of banks and own computations

Descriptive statistics (for the independent variables as well as descriptive statistics for financial statement line items) were employed in the study as part of analysis of data. The analysis reveals that all the three bank groups (stable banks listed on the ZSE, defaulted banks, and top international banks) are highly levered as they have leverage of 88%,

106%, and 113% respectively. The stable banks are more profitable at an average of 13% as compared to defaulted banks and top international banks with mean profitability of 13% and 3% respectively. The defaulted banks failed to make profits whilst the top international banks are close to break even. Tangibility for the three data sets is evidence that banks have more current rather than fixed assets. The stable banks have mean tangibility of 11%; defaulted banks 18%, and the top international banks 6%. The stable banks' growth is at an average of 15% as compared to the defaulted and top international banks at 48% and 33% respectively.

4.3.3 Panel data analysis

The empirical data on the value of the variables are computed for five consecutive years (2010 - 2014), using audited financial statements of the selected commercial banks. Therefore, pooled cross-sectional data is carried out to provide a comprehensive analysis of the determinants of capital structure of commercial banks in Zimbabwe. The SPSS application version 22 was used to run the regressions. In the previous section, a discussion on whether the regression model is unbiased or not was done by running test of normality, multicollinearity, heteroscedasticity, and model specification, which suits the employed pooled cross-sectional data.

A step wise regression was used to choose an independent variable which is significant towards explaining leverage. Leverage was calculated using the debt ratio, i.e. total debt/total assets. The coefficients were calculated through the origin, therefore, there will be no intercept, the constant value β_0 will be zero. Table 26 shows the model that includes the five independent variables (profitability, tangibility, size, growth, and volatility of assets). The model is insignificant as indicated by an R of 48.5% and an R square of 24%. The model for the defaulted banks is also insignificant with an adjusted R square of 16% as shown on Table 27. However, the model for the top banks is significant in explaining leverage. The model for international banks has an R square of 81% indicating a very high relationship between leverage and the five independent variables as seen in Table 28.

Table 27: Model summary^b for stable banks

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.485 ^a	.235	-.038	.04559	.235	.860	5	14	.531	2.728

a. Predictors: (Constant), Volatility, Tangibility, Growth, Profitability, Size

b. Dependent variable: Leverage

R is a correlation coefficient which ranges from -1 to 1 (with -1 showing an inverse relationship; 0.7 showing a strong relationship; 0.5 indicating a moderate relationship; 0 shows no relationship; and 1 indicates a perfect correlation). The R in Table 26 is closer to 0 (0.485) which indicates a moderate to weak correlation between the dependent and independent variables. The R squared is a measure of how close the data are to the fitted regression line. The higher it is, the better the model fits the data. The R squared is 0.235 in the table 26 above. In other words, 23.5 percent of the change in the dependent variable is explained by the independent variables that are included in the models. The adjusted R squared is adjusted for the number of predictions in the model. It avoids the overestimation effect of adding other variables to the model. It is always equal or less than R squared. From the results, adjusted R squared is 0.038 and evidences a very low negative correlation between leverage and the explanatory variables.

The standard error of estimate measures the accuracy of predictions made with a regression line. It is a measure of dispersion (variability) in the predicted score in a regression. The smaller the standard error of the estimate is, the more accurate the

predictions are. The standard error of estimate was 4.6%, therefore implying that the predictions are accurate.

In Table 26 above, the P-value (significance) is 0.531 (greater than 0.05), which also indicates that the leverage of the selected commercial banks is not predicted with almost 99.99 percent probability by the five variables PR, SZ, TN, GR, and VOL together, and shows a statistically insignificant relationship among them. Therefore, the F-statistics of the regression result and its p-value, proves there is an insignificant relationship between the capital structure measured in terms of leverage and the determinant explanatory variables measured in terms of PR, SZ, and VOL.

The R for defaulted banks (Table 27) is 65% whilst that of top international banks (Table 28) is 92%. They are both higher than that for stable banks. The R square for the defaulted and international banks is 41.8% and 85.6% respectively. The adjusted R square is 15.3% and 81% respectively for the defaulted and international banks. The p-value (significance) for the defaulted and international banks is 0.245 and 0.000 respectively. That implies that the model for defaulted banks is insignificant being above 0.005 whereas that for the top international is significant.

Table 28: Model summary^b for defaulted banks

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. Change	
1	.646 ^a	.418	.153	.56890	.418	1.579	5	11	.245	1.774

a. Predictors: (Constant), Volatility, Tangibility, Growth, Profitability, Size

b. Dependent variable: Leverage

Table 29: Model summary^b for top international banks

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate						Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.920 ^a	.846	.806	.71241	.846	20.912	5	19	.000	1.646

a. Predictors: (Constant), Volatility, Tangibility, Growth, Profitability, Size

b. Dependent Variable: Leverage

One-way ANOVA (Analysis Of Variance) was also used to run tests on the statistical data. One-way ANOVA is a technique used to compare the means of three or more samples using the F-distribution. From Table 29, the significance level is 0.531. The analysis also confirms the results obtained from the other tests (Table 26) that the independent variables do not explain the dependant variable leverage. The results are consistent with those from tables 26 to 28.

The significance level for defaulted banks in Table 29, shows an insignificant relationship, whilst that of top international banks is significant at 0.000 as shown in Table 30.

Table 30: ANOVA^{a, b} for stable banks

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.009	5	.002	.860	.531 ^b
	Residual	.029	14	.002		
	Total	.038	19			

a. Dependent Variable: Leverage

b. Predictors: (Constant), Volatility, Tangibility, Growth, Profitability, Size

Table 31: ANOVA^{a, b} for defaulted banks

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.555	5	.511	1.579	.245 ^b
	Residual	3.560	11	.324		
	Total	6.116	16			

a. Dependent Variable: Leverage

b. Predictors: (Constant), Volatility, Profitability, Growth, Tangibility, Size

Table 32: ANOVA^{a, b} for top defaulted banks

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.067	5	10.613	20.912	.000 ^b
	Residual	9.643	19	.508		
	Total	62.710	24			

a. Dependent Variable: Leverage

b. Predictors: (Constant), Volatility, Growth, Size, Tangibility, Profitability

Graphs from SPSS were extracted to aid in the discussion of the performance of the banks under investigation. The financial statements analysis follows below. The three groups below they include total assets, total equity and liabilities, total deposits, interest income, total expenses, income/loss before and after taxation.

4.3.5 Total assets

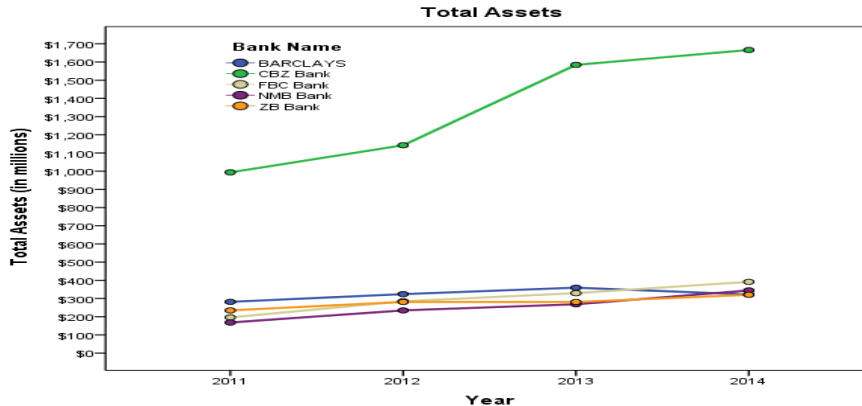


Figure 16 Total assets for stable listed banks

Source: Financial statements of banks and own computations

Total assets for the stable banks include line items such as loans and advances, cash and bank assets, property and equipment, intangible assets, tax assets. Property and equipment comprises land, buildings, leasehold improvements, motor vehicles, computer equipment, and work in progress. Buildings make up the bulk of the property and equipment across all the banks.

Assets showed an increase of 6% in 2014; 2011, an increase of 22%; 2012, an increase of 18%; and 2013, an increase of 20%. The decrease experienced in 2014 is as result of Barclays Bank, which had a decrease in assets of 12% and CBZ growth, which declined from 28% in 2013 to 5% in 2014. The decline is also a reflection of the cautious approach to lending by most banking institutions and disposal of qualifying non-performing loans to ZAMCO. The increase in the total assets year-on-year is due to the increase in loans and advances, which is the core business of lending. Loans and advances are the largest asset line on the balance sheet. They contribute 52% of total assets in 2014; 58% in 2011; 51% in 2012; and 48% in 2013. The loan to deposit ratio was 90% in 2014; 89% in 2011; 81% in 2012; and 90% in 2013. However, with the increase in loans and advances also came an increase in non-performing loans (NPLs). The NPLs increased as a result of the macroeconomic challenges as well as institution specific weaknesses (e.g. weak loan administration standards) which resulted in borrowers failing to service loans. The ratio

of NPLs to total assets was 16% in 2014; 8% in 2011; 13% in 2012; and 16% in 2013. ZAMCO and the Credit Registry were established to address the scourge of NPLs.

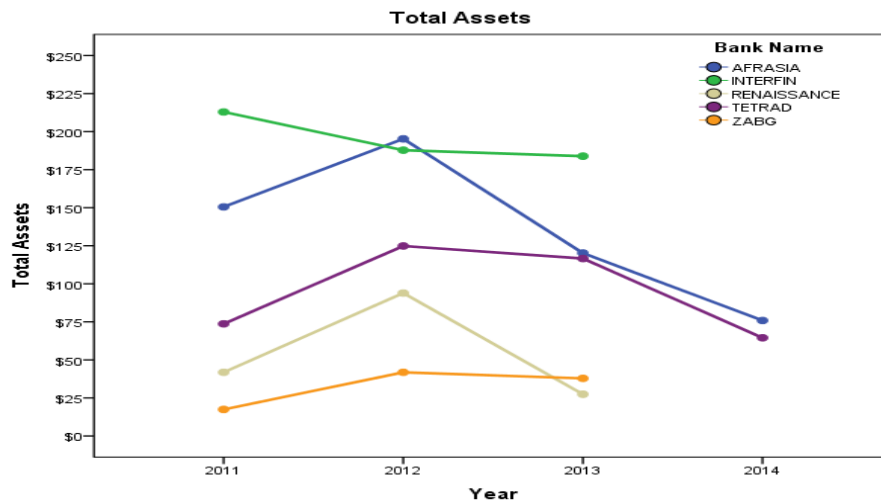


Figure 17: Total assets for defaulted banks

Source: Financial statements of banks and own computations

The total assets for the defaulted banks also include line items such as loans and advances, cash and bank assets, property and equipment, intangible assets, tax assets. Loans and advances contributed 50% about towards total assets. However, most of the loans and advances are to related parties and were never repaid resulting in high levels of NPLs. From Figure 17, it can be noted that the assets show a decrease of 69% in 2014; a decrease of 37% in 2013; an increase of 31% in 2012; and an increase of 11% in 2011.

The top international banks' assets include but are not limited to: fixed assets, cash and bank assets, loans and advances, precious metals, and investments (financial and in subsidiaries). The loans and advances for 2014 contributed 52% towards total assets. From Figure 18, it can be noted that the top international banks' performance shows steady growth year-on-year. However, the international banks have a decrease in total assets in 2013.

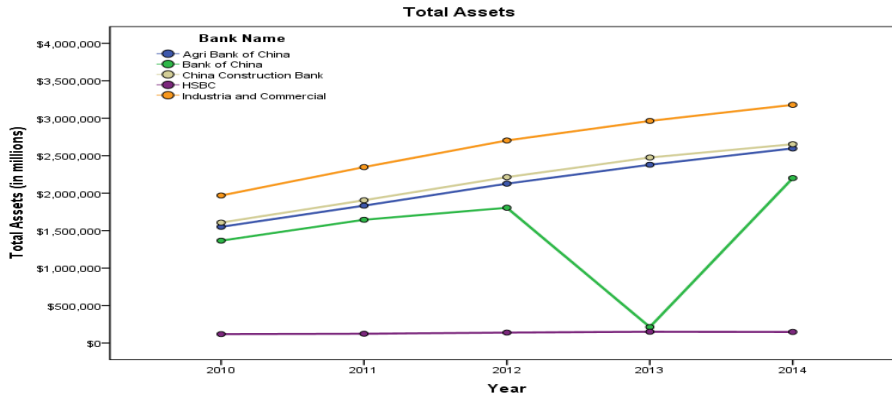


Figure 18: Total assets for top international banks

Source: Financial statements of banks and own computations

4.3.6 Total equity and liabilities

The stable banks' liabilities comprise deposits (from other banks and from customers), provisions, trade and other payables, and tax, amongst others. Deposits make up the bulk of total equity and liabilities. In 2014, the total deposits were 58% of the total equity and liabilities, while in 2011 the total equity was 65%; in 2012 it was 63%; and in 2013 it was 53%. Figure 19 is skewed to the right. This is indicative of growth in the equity and liabilities year-on-year. Figure 21 shows that international banks also experience a positive trend, unlike the defaulted banks in Figure 20 with a negative skew, implying that the total equity and liabilities are decreasing.

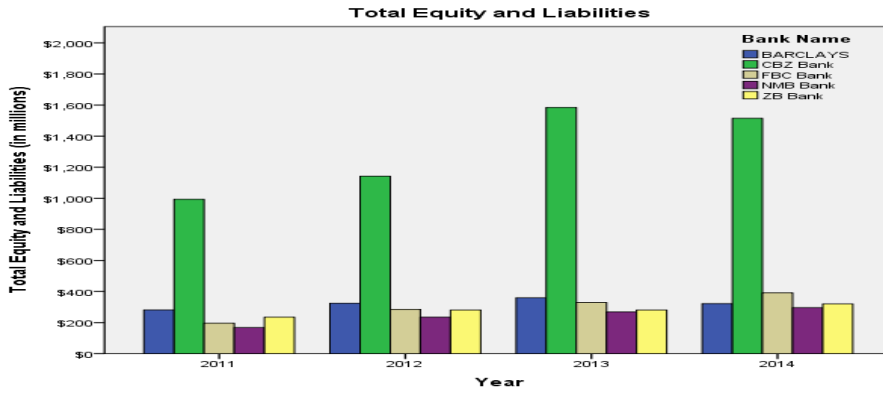


Figure 19: Total equity and liabilities for stable banks

Source: Financial statements of banks and own computations

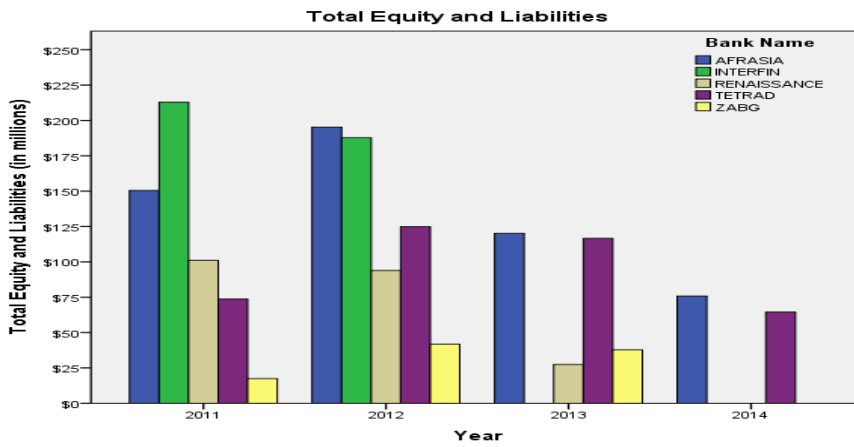


Figure 20: Total equity and liabilities for defaulted banks

Source: Financial statements of banks and own computations

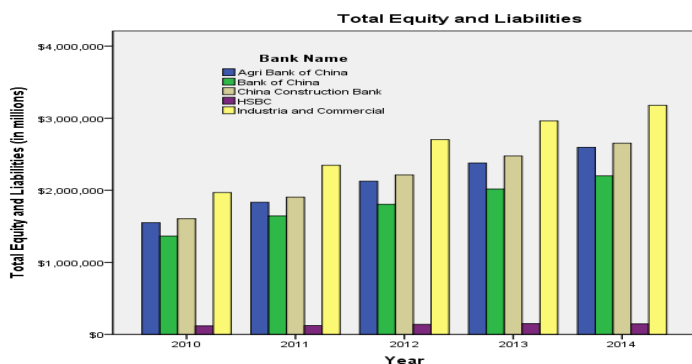


Figure 21: Total equity and liabilities for top international banks

Source: Financial statements of banks and own computations

4.3.7 Total deposits

Deposits make up the bulk of total liabilities for the banks. The deposits consist of demand deposits, savings deposits, and fixed deposits. The deposits largely comprise of demand deposits from customers. The demand deposits make up 47% of the total deposits, while fixed deposits contribute 33% towards total deposits. Total deposits increased by 10% in 2014; in 2012 by 18%; and in 2013 by 1%. Deposits however, remain short-term in nature, thus affecting the tenure of loans since the banks use the deposits to advance loans to customers. The situation is worsened by limited interbank trading, general market illiquidity, and limited lender of last resort function of the RBZ. In 2014, total deposits to total liabilities for the stable banks were 62% while in previous years were as follows: 2013-59%; 2012-71%, and 2011-71%, as compared to 34% for defaulted banks and 49% for top international banks. Stable banks on the ZSE have more deposits as compared to the other two data sets.

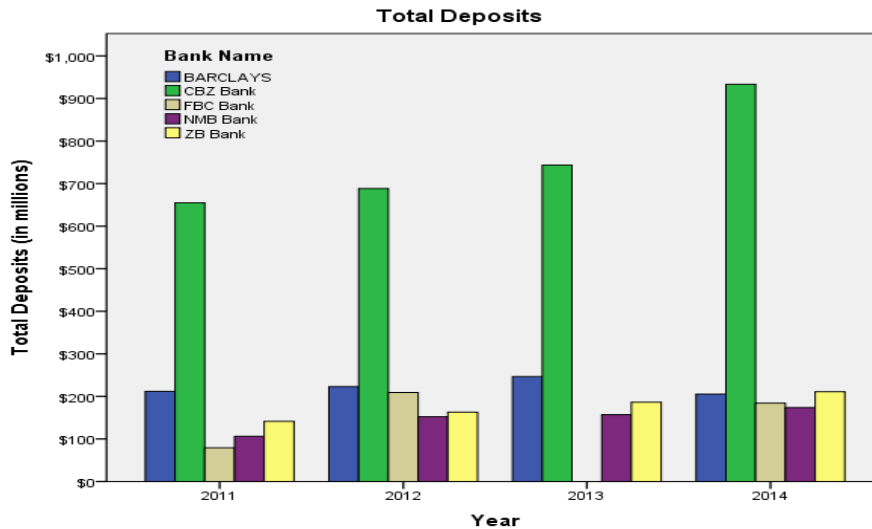


Figure 22: Total deposits for stable banks

Source: Compiled by researcher

The loans to deposit ratio, is expressed as the loans and advances over the total deposits. The ratio assesses bank liquidity. If the ratio is high, it is an indicator that the bank may be unable to fund any unforeseen funding requirements. An ideal ratio would range between 80-90%. A lower ratio may be indicative of the bank's inability to earn as it should be. The loan to deposit ratio for the stable banks was 93% for 2014; for defaulted banks 81%, and top international banks was 115%. The ratio for stable banks and the defaulted banks is high but near the ideal. The top international banks ratio was over 100% and suggests that the banks may experience liquidity problems should they need to fund unforeseen expenses.

The loan and advances growth rate is the change in total loans and advances from prior years. The ratio shows whether or not a bank is growing its portfolio, thus increasing the bank's value. A higher ratio may imply that the bank is doing better than its competitors because of lower costs charged to customers, low-cost capital base, or that it has targeted attractive markets. However, it can also be an indicator that the bank prices its money cheaply, loosens credit standards to attract more customers, or gives incentives for customers to move to their loans. Thus, a higher ratio may be risky as it may lead to an increase in provision for NPLs, thus reducing average returns. The stable banks' loan

growth for 2014 was 15%, whilst that for stable banks was 10%. The defaulted banks had a negative growth of 159% in 2014.

Deposit growth rate measures the rate at which deposits increase or decrease year-on-year. It indicates how well a bank markets its services to increase consumer foot traffic or consumers' confidence in the bank. Deposits are the cheapest form of financing for banks and, therefore, the more the deposits, the more the lending activities a bank can do. The stable banks' deposit growth rate was 13% for 2014; top international banks 8%; and defaulted banks a negative 105%. This is illustrated in figures 22 to 24.

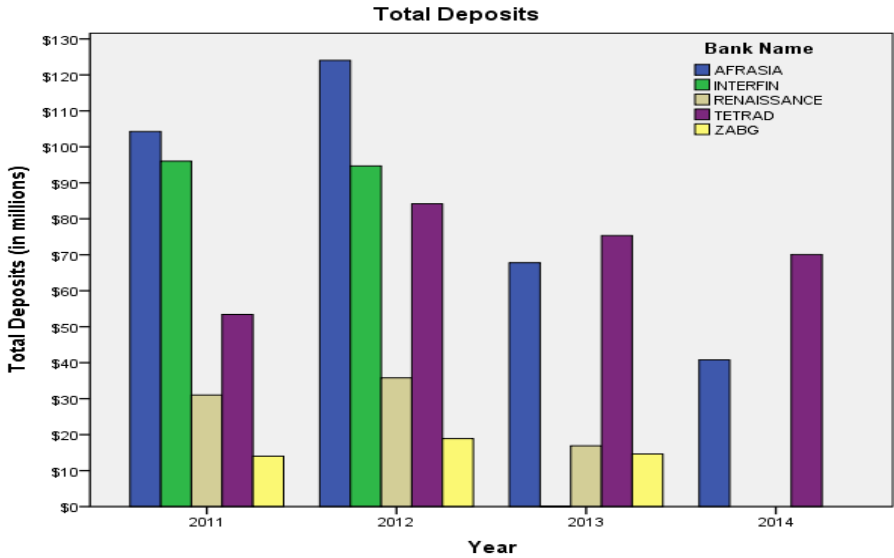


Figure 23: Total deposits for defaulted banks

Source: Compiled by researcher

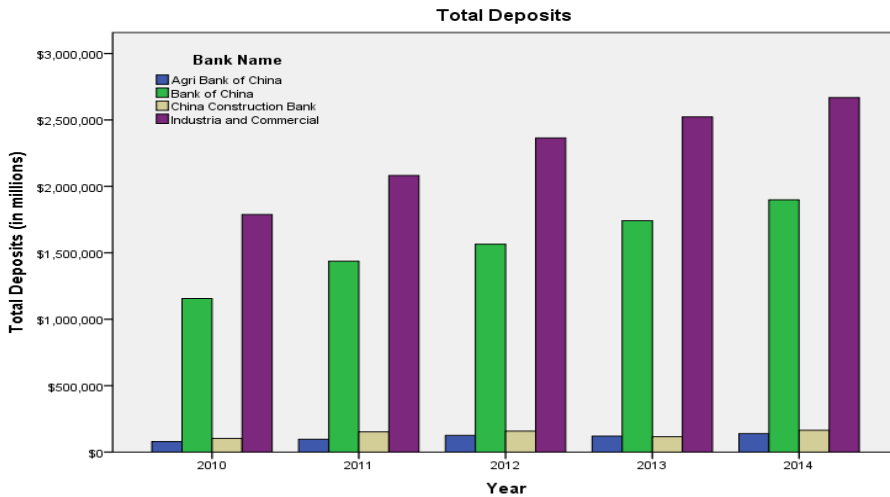


Figure 24: Total deposits for top international banks

Source: Compiled by researcher

4.3.8 Interest income

The banks' income is mainly interest income. The banks have other non-interest income sources such as foreign exchange dealing profits, fees and commissions, and other income. The major source of income for the banks is interest income arising from the loans and advances (banker's acceptances, overdrafts, 3rd party loans, and staff loans). The interest income was 67% of total income in 2014 (2011-59%; 2012-63%; 2013-66%), as compared to 62% and 85% for defaulted and top international banks respectively. Interest income as a percentage of total loans and advances was 17.82% for the stable banks in 2014; the defaulted banks, 30.06%; and top international banks was 9.31%. The ratio indicates that the stable banks in Zimbabwe charge higher interest on their loans as compared to the top international banks. The defaulted banks' interest rates were above 30% and very high.

From Figure 25, the stable banks all show an increase in the interest income from 2011 to 2014, except for NMB and ZB, which show a decrease of 21% and 14% respectively. The increase in interest income is as result of the increase in advances and loans year-on-year.

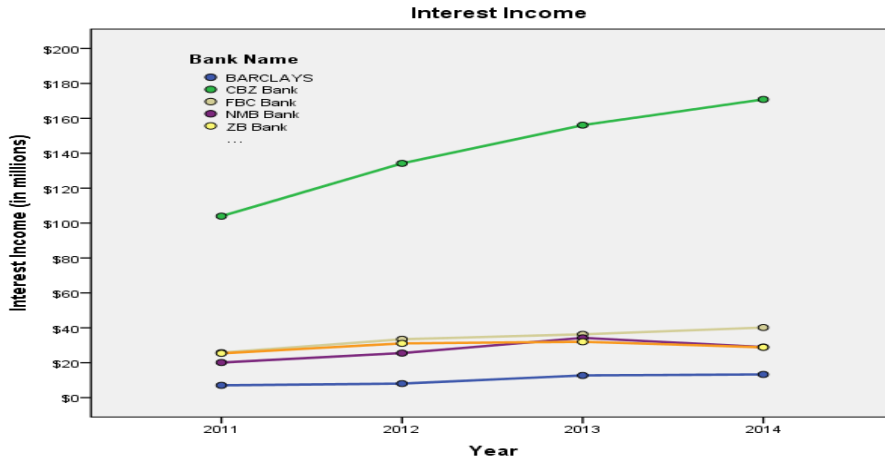


Figure 25: Interest income for stable banks

Source: compiled by researcher

The defaulted banks' interest income indicates that the banks were struggling to earn income. This is in line with the decrease noted in Figure 26 for total assets-decrease in loans and advances, also causing a decrease in interest income. Various reasons contributed to the decline in interest income. These include, but are not limited to, loss of consumers due to reckless lending, increase in NPLs given to related parties, reduction in deposit base due to consumers moving to more stable banks.

The interest income for the top banks, as shown in Figure 27, shows an upward trend for all the banks, which is in line with the increase in loans and advances.

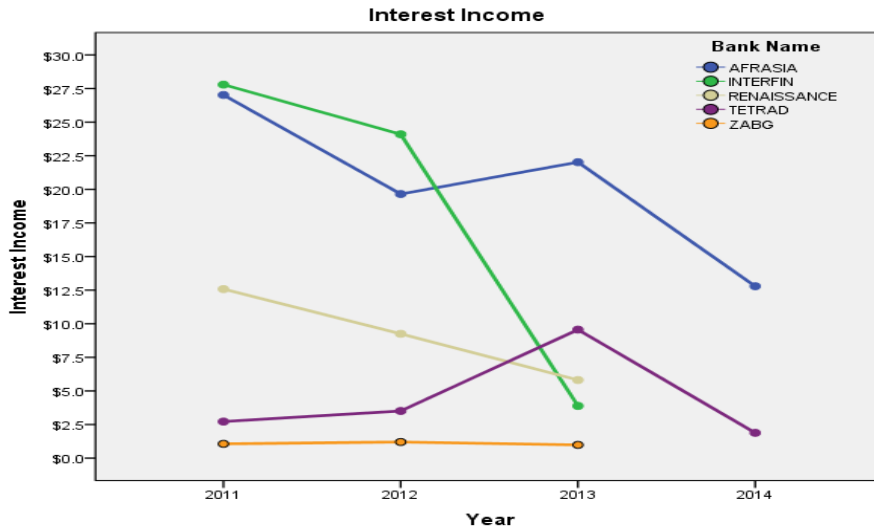


Figure 26: Interest income for defaulted banks

Source: compiled by researcher

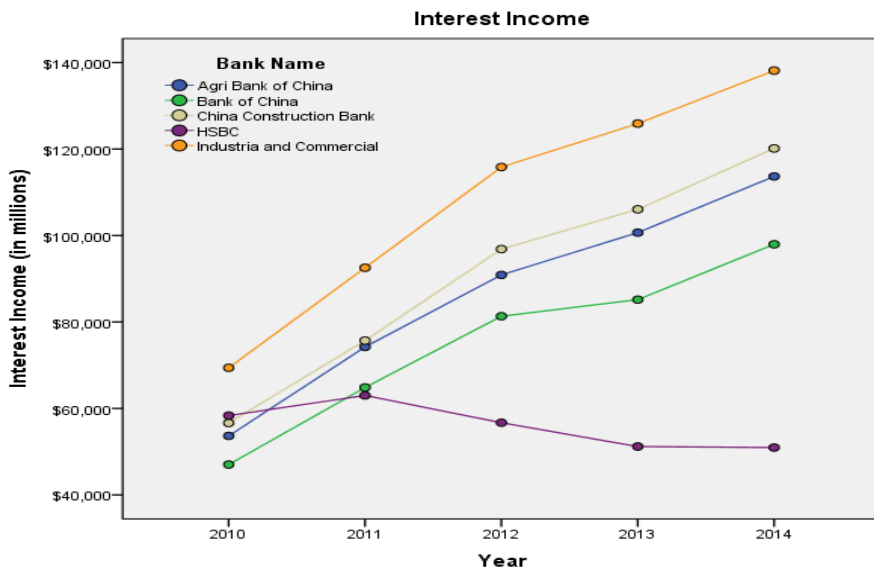


Figure 27: Interest income for top international banks

Source: compiled by researcher

4.3.9 Total expenses

The total expenses consist of interest expense, provisions, and other non-interest expenses such as salaries and rentals. The major non-interest cost drivers for commercial banks are salaries and rentals. The interest expense is expected to be the biggest expense item on the banks' statement of profit or loss. Interest expense contributed 38.36% of total expenditure for 2014 while in the previous years, it was as follows: 2011-26%; 2012-33%; 2013-31% for the stable banks. Defaulted banks had only 3.18% interest expense of total expense, whilst the top international banks' ratio was at 99.65%. The greatest contributor to the defaulted banks' expenses are salaries and employee benefits.

The interest coverage ratio determines how easily a firm may pay its interest expense on outstanding debt. The ratio is calculated as EBIT (Earnings Before Interest and Tax) also referred to as interest expense. The ratio calculates how many times the EBIT can pay for the interest expense. The lower the ratio, the higher the chance of defaulting. Less earning will be available to meet interest payments and that exposes the bank to higher interest rates. A ratio below 1 means that the bank is having difficulty generating enough cash flows to service debt. A ratio of over 1.5 indicates that the bank will be able to service its debt obligations without risk of default. The ratio for stable banks is 1.2; for defaulted banks a negative 1.2; and top international banks, 1.95. The stable banks and international banks are able to pay the interest expense from their earnings. The defaulted banks, on the other hand, are unable to generate income to service the debt.

Interest expense is the money paid by the bank for the total deposits by customers. The expense fluctuates based on inflation and interest rates. The ratio of interest expense to total deposits for stable banks is 8.85%; top international banks, 4.37%; and the defaulted banks, 18.46%. All three data sets managed to charge more for interest income than they paid for interest expense. However, the rates for the defaulted are too high, thus compromising their ability to continue as a going concern. The movement in interest expense for the banks is in line with movement in deposits. Refer to figures 28 to 30.

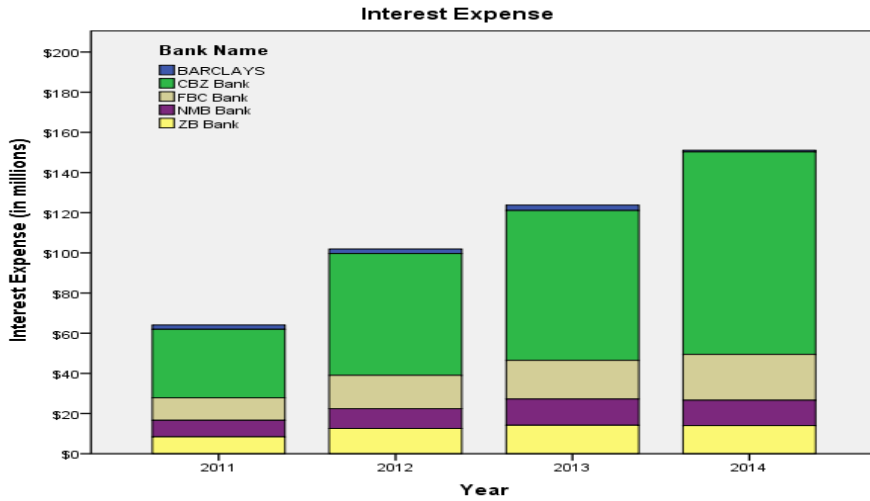


Figure 28: Interest expenses for stable banks

Source: compiled by researcher

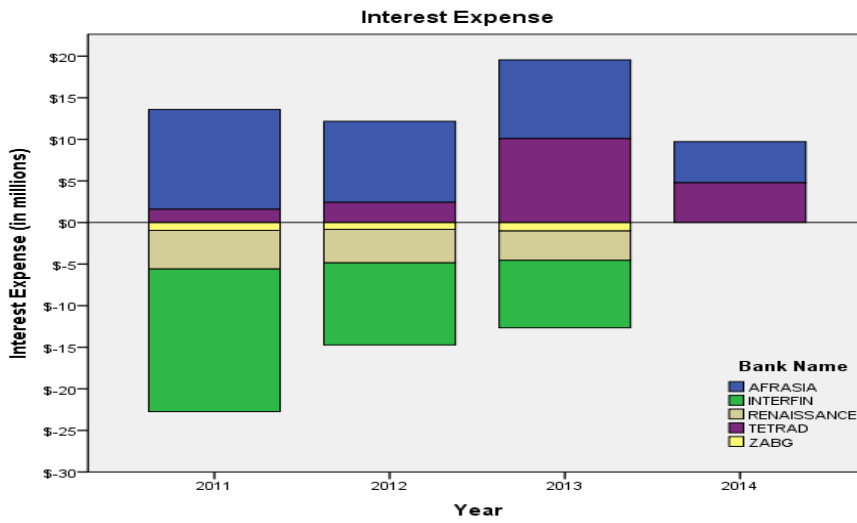


Figure 29: Interest expenses for defaulted banks

Source: compiled by researcher

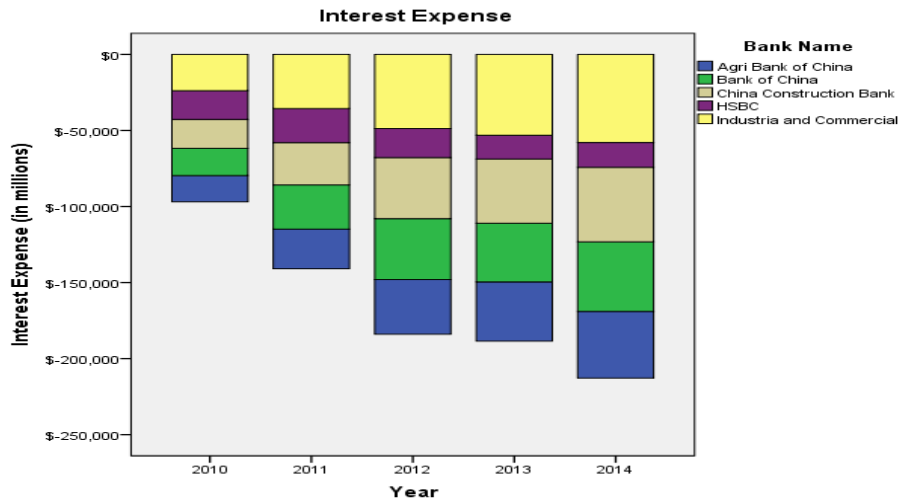


Figure 30: Interest expenses for top international banks

Source: compiled by researcher

4.3.10 Income/Loss before taxation

The listed banks posted an overall profit before tax of USD\$31 million in 2014; USD\$59 million profit in 2011; USD\$65 million profit in 2012; and USD\$43 million profit in 2013. Refer to Figure 31 for the illustration. CBZ had a huge decrease of 29% in profit before tax in 2013. NMB profit also dropped significantly from \$9 million to a loss of \$800 000 in 2013, and ZB's profit declined significantly too, from \$5 million to \$600 000. The other banks recorded profits. The increase in profitability is as a result of an increase in operating income.

The listed banks' performance was better than that for the defaulted banks for the period between 2011 and 2014. The defaulted banks had an overall loss of USD\$48 million in 2014; USD\$25 million loss for 2011; USD\$48 million profit in 2012, and USD\$76 million loss before tax in 2013. Afrasia had a loss of USD\$20 million, whilst Tetrad had a loss of USD\$27 million in 2014. The losses are as a result of the high levels of NPLs, liquidity challenges in Zimbabwe, and the lack of critical margin terms of revenue to cover operating expenses.

The average cost to income ratio was 93% in 2014, while in 2011 it was 81%; 2012-82%; and; 2013-89%. These ratios indicate that the bulk of the banks' income is absorbed by

expenses. Afrasia and Tetrad had the negative cost to income ratios at 131% and 301% respectively in 2014. The banks were incurring more expenses than they were generating income. The ratio for CBZ was the lowest at 82%.

From Figure 33, it is evident that the top international banks' performance was much better than that of the Zimbabwean listed banks. The banks had positive profit before tax from 2011 to 2014. The profit before tax increased year-on-year, unlike for the listed banks, which fluctuated in other years. HSBC fluctuated with profits decreasing in 2011 and 2012, but it was still in a positive profit position.

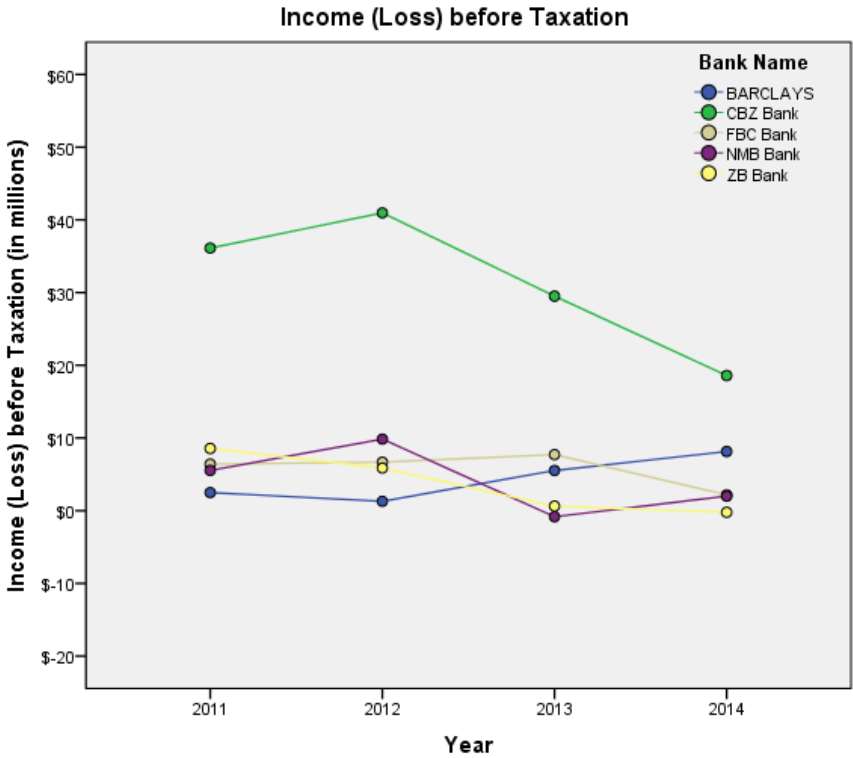


Figure 31: Income/Loss before taxation for stable banks

Source: compiled by researcher

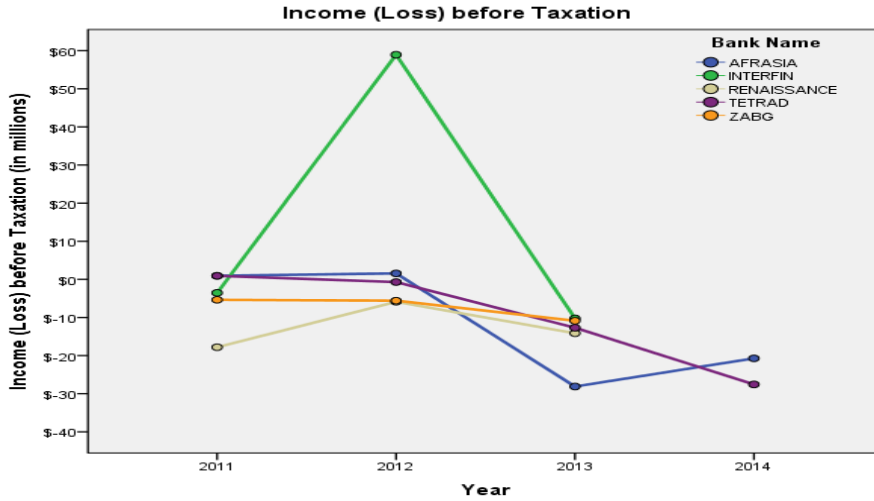


Figure 32: Income/Loss before taxation for defaulted banks

Source: compiled by researcher

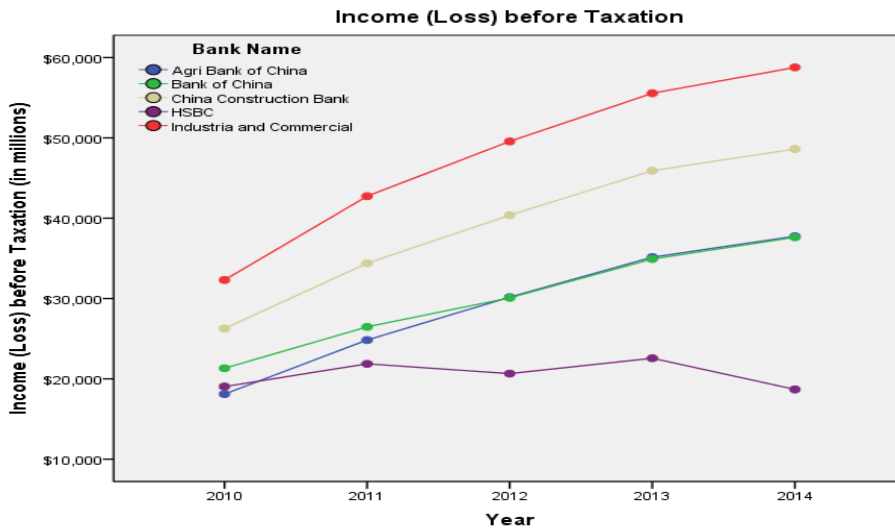


Figure 33: Income/Loss before taxation for top international banks

Source: compiled by researcher

4.3.11 Income/Loss after taxation

From Figure 34 it is noted that the listed banks recorded an overall profit after tax of USD\$18.7million in 2014; USD\$43.5 million profit in 2011; USD\$48.2 million profit in 2012; and USD\$26.3 million profit in 2013. The tax rate for corporates in Zimbabwe was 25.75%. Therefore, a significant decrease of the profit once tax is factored in is noticeable. Deferred tax (assets or liabilities) will have the effect of increasing or decreasing the tax payable, thus the effective tax rate. Barclays and CBZ were the two banks that were more profitable in 2014 than the rest. FBC, NMB and ZB Bank were almost close to zero. Figure 35 for the defaulted banks shows that the loss after tax was almost the same as before tax because they did not pay any income tax since they incurred losses. For all the four years, most of the banks were in a loss position except for 2013 when Interfin had a profit of USD\$58 million after tax. In Figure 36, the top international banks show a positive trend in their profit after tax. Their performance, again, is better than the listed banks. The lowest profit after tax figures for all the five years under review are well above USD\$10 trillion as compared to listed banks, which are close to zero. The tax rate for the top international banks is 25%.

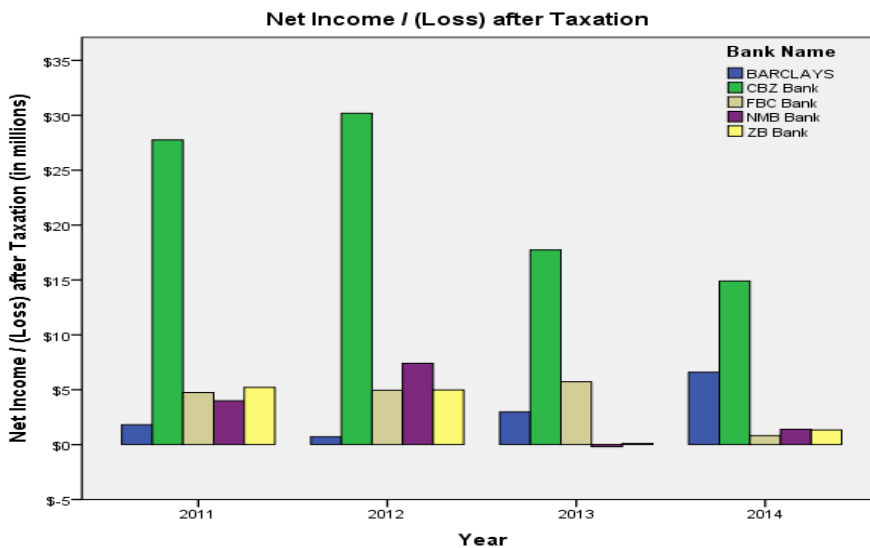


Figure 34: Income/Loss after taxation for stable banks

Source: compiled by researcher

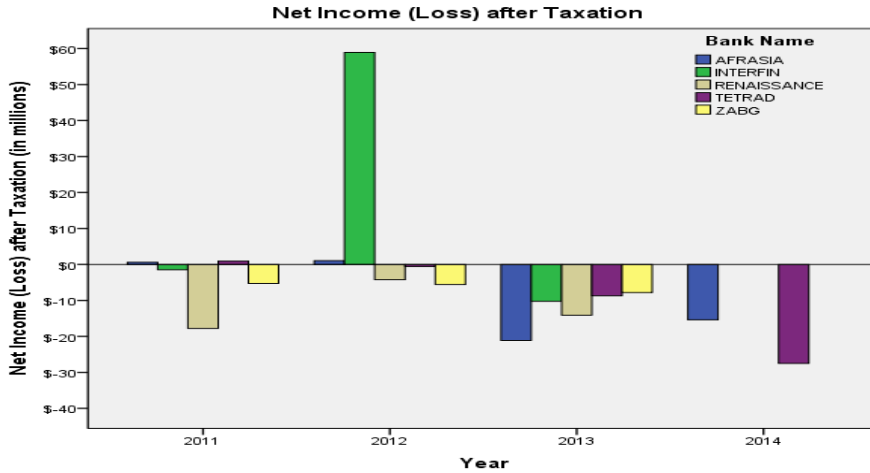


Figure 35: Income/Loss after taxation for defaulted banks

Source: compiled by researcher

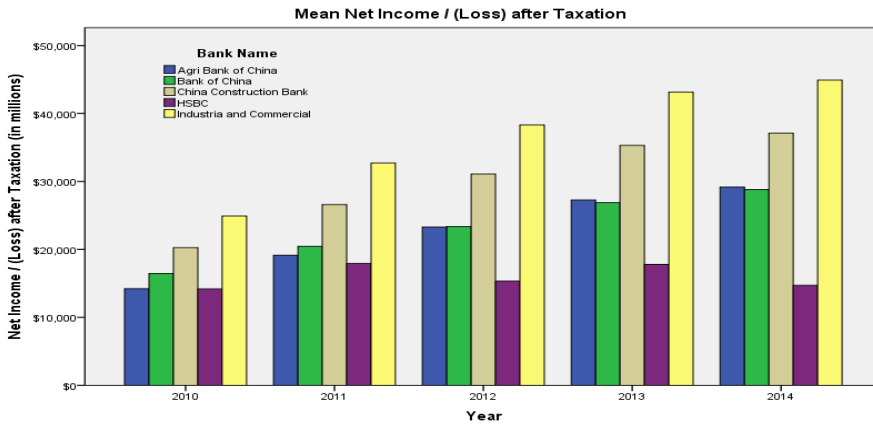


Figure 36: Income/Loss after taxation for top international banks

Source: compiled by researcher

4.4 Summary of findings against literature

Scholars such as Diamond (1984) confirm that client deposits are indeed the optimal form of funding for banks. According to empirical findings by Allen *et al.* (2014:2) banks would rather finance themselves entirely with deposits in the absence of regulation. Client deposits are a cheaper form of finance as compared to equity. This is because their return is below that of risky assets.

There are two hypotheses on what determines bank capital structure. According to Berlin (2011:7) these are, 1) regulatory capital requirements determine bank capital structure although banks hold an extra cushion above the required capital level; and 2) bank capital levels are determined in the market. Furthermore, studies by Flannery and Rangan (2008); and Gropp and Heider (2008) reveal that bank leverage decisions are a product of market pressures, i.e. investors or other bank counterparties demand that a bank with more portfolio risk be better capitalised.

Mishkin (2000:227) is of the view that regulation is the one that regulates the amount of capital a bank holds. Gropp and Heider (2008) disagree with that view by arguing that bank capital structure decisions are not entirely determined by regulation as evidenced by 16 different countries for 14 years. The banks seem to also optimise capital structure like other non-financial firms. The capital levels of banks in the US and other parts of the world are much higher than the regulatory requirements. Therefore, Gropp and Heider (2008) conclude from their findings that banks' leverage is driven by the unobserved time invariant bank fixed effect. Furthermore, like any other non-financial firms, banks have stable capital structure levels specific to each individual bank.

Octavia and Brown (2008) did a study using a sample of 56 listed banks in developing countries. Their aim was to determine if the standard determinants of capital structure are significant in determining the level of bank capital in the developing countries. From their results, it is apparent that the standard determinants of capital structure do explain the variation in bank capital above the minimum requirement. In addition, they note that macro-economic factors as well as the private sector are also significant in determining bank capital structure in the developing countries.

Texteira *et al.* (2013) also investigated if regulatory capital requirements are the only determinant of bank capital structure. They used a sample of 560 banks for six years. From their results, regulatory requirements are not the first order determinants of bank capital structure. They conclude from the findings that the standard determinants of capital structure seem to also determine the capital structure for banks. They note that excess equity capital is positively related to growth, profitability, and dividend pay-out, and negatively related to size and tangibility. In agreement with Octavia and Brown's (2008) findings, they note that macro-economic variables such as GDP growth, inflation, and the national shares market, play a significant role in explaining bank capital structure.

Acharya, Mehran, Schuermann and Thakor (2012:2) did a comparison of the bank capital structure of banks with that of non-financial firms. Like other scholars, they found that banks have higher leverage as compared to other firms. They found three possible ways or reasons why banks are highly levered.

First, it is due to the nature of bank operations, which is unique to banks. Banks take client deposits unlike non-financial firms. These deposits are a form of debt and are recorded as liabilities on the balance sheet, and they are used to make loans as well as to provide liquidity and transaction services to depositors. The client deposits make up the bulk of the bank's financing. Secondly, banks might prefer debt to equity because of the tax deductibility of the interest payments as compared to dividends, which are not. However, there seems to be a problem with this view because even non-financial firms can choose to take advantage of the tax shield.

Thirdly, the scholars try to explain the high leverage as a monitoring tool by the shareholders to management. This is in line with the agency costs theory. As debt is increased, the loss-absorption capacity provided by equity capital in the event of bankruptcy shrinks, thus forcing creditors to monitor management activities more closely and to raise the price of debt so as to compensate for the increased risk.

Even though this affect also equally applies to non-financial firms, it is particularly unique for banks because bank funding comes in the form of demand deposits. If depositors somehow suspect management of inefficiency and/or fraud, they may respond by withdrawing their funds from the bank. Upon observation, other uninformed depositors

will follow suit and this may force the bank into liquidation. Therefore, management will ensure that they stay on the right track in order to avoid such a scenario. Thus, it is evident that the need for market discipline is much greater in banks than other firms.

Profitability measures for the banking sector are measured by ROA, ROE and NIM (Net Interest Margin). ROA and ROE for stable banks are calculated in Figure 4.6 above. These ratios measure how the bank has efficiently used assets and equity to generate profit. For ROA and ROE, 1.5% and 10% are generally considered good ratios. Banks are highly levered, therefore, a ROA of 1% for banks indicates huge profits. Because of leverage, banks earn a much larger ROE than ROA. The higher the ROE the better, but it may be an indicator that the bank is highly levered. ROA is calculated as net income/total assets; while ROE is calculated as net income/equity. NIM is calculated as interest income, less interest, expense/total assets *100.

The NIM examines the success of a bank's investment decisions. A negative NIM indicates that the bank failed to optimise investments as evidenced by interest expenses being higher than the return produced. The ROA for stable banks is 0.62; top international banks, 1.44; and defaulted banks, negative 21.39. An ROA of 1% for banks indicates high profitability because banks are highly levered as compared to non-financial firms. Therefore, top international banks' performance was better than stable banks. The defaulted banks' performance was worse, indicating that the banks did not use assets efficiently since they incurred losses.

Most banks NIMs range between 2-5%. The stable banks' NIM was 4%; top international banks, 3%; and defaulted banks, 3%. The three groups are all within the range. The average ROE for 2015 for banks was at 8.5% as per the research done by Maverick (2015). The stable banks' ratio was 6.64%; top international banks' ratio was 17.31%; and the defaulted banks was negative 215%. A higher ROE indicates that a bank is using its equity contributions effectively to generate a return and profits. The stable banks' return was positive, though below the industry average. The top international banks' performance is better than average by double the amount, whilst the defaulted banks struggled.

Table 33 below is the summary of the ratio analyses of the three banks and it can be noted that the defaulted banks' performance indicates poor performance (e.g. negative ratios for ROA, ROE, interest coverage, loan growth, and deposit growth).

Table 33: Ratio analysis

Ratio	Calculation	Results		
		Stable banks	Defaulted banks	Top international banks
ROA	Net income/Total assets	0.62	-21.39	1.44
ROE	Net income/Total equity	6.64	-215	17.31
NIM	(Interest income - Interest expense)/Total assets	4%	3%	3%
Interest coverage ratio	EBIT/Interest expense	1.2	-1.2	1.95
Interest income contribution to income	Interest income/Total income	66.43%	62.20%	85%
Interest income ratio	Interest income/Total loans and advances	17.82%	30.06%	9.31%
Interest expense contribution	Interest expense/Total expenses	38.36%	28.58%	99.65%
Interest expense ratio	Interest expense/Total deposits	8.85%	18.46%	4.37%
Loan growth	(Current year loans-Prior year loans)/Current year loans	15%	-159%	10%
Deposit growth	(Current year deposits-Prior year deposits)/Current year deposits	13%	-105%	8%

Source: Computations from the financial statements

4.4.1 Conclusion

Financial statement analysis was done on three groups of banks: the stable banks listed on the ZSE; the top international banks; and the Zimbabwean defaulted banks. The performance of the stable banks was juxtaposed to the two groups. Ratio analyses was employed in the analysis. Line items from both the statement of comprehensive income and statement of financial position were analysed. Line items included: loans and advances, total assets, total deposits, equity, total liabilities, interest income, interest expense, and EBIT. From the financial statement analysis, it is evident that the top international banks and the banks listed on the Zimbabwe Shares Exchange operate efficiently, whilst the defaulted banks do not. The defaulted banks failed mainly because of poor financial management and lack of good corporate governance.

4.5 Test of consistency with capital structure theories

As presented in chapters 1 and 2 and summarised in Table 34 below, this study followed three capital structure theories, namely, the static trade-off theory, pecking order theory and agency costs theory and tried to find out which one better explains the financial decision of the sample of commercial banks. All these theories possess different traits to explain the corporate capital structure.

Static trade-off theory proposes that the ideal (or optimum) capital structure is a trade-off between net tax benefit of debt financing and bankruptcy costs. Firms with high tangible assets will be in a better situation to provide security for debts, so these firms can raise more debt. Larger and high profitable firms maintain their high debt ratio, while firms with high growth rate use less debt financing.

Pecking order theory postulates that firms prefer internal financing to external financing and risky debt to equity due to information asymmetries between insiders and outsiders of the firm. Agency costs theory advances the financial behaviour of firms in context of the agent and principal relationship.

As a result, a test of the consistency of capital structure relevancy theories in Zimbabwean commercial banks is made based on the expected and observed signs of the coefficients of the explanatory variables.

Therefore, the following conclusion is made whether or not capital structure decisions that are made in the commercial banks provide empirical support for the existing theories.

Table 34: Test of consistency with capital structure theories

Explanatory variable	Definition	Theoretical signs of explanatory variables based on capital structure theories			Observed sign
		Static trade-off	Pecking order	Agency costs	
Profitability (PR)	Ratio of operating assets to total assets	+	-	-	-
Tangibility (TN)	Ratio of tangible (fixed) assets to total assets	+	+	-	+
Size (SZ)	Natural logarithm of total assets	+	-	+	+
Growth (GR)	Percentage increase (change) in total assets	-	+	-	+
Volatility (VOL)	Standard deviation of change in total assets	-	+	?	+

Source: Own computation from various authors

The theoretical signs of explanatory variables are presented in summary based on the former capital structure theories that were used by different scholars such as Titman and Wessels (1988); Harris and Raviv (1991); Buferna *et al.* (2005); and Octavia and Brown (2008).

- “+” indicates that the stated theory suggests a positive association between the explanatory variable and leverage.

- “-” indicates that the specified theory proposes a negative relationship between the explanatory variable and leverage.
- “?” indicates that there is no clear prediction.

4.5.1 Leverage with profitability

In this study, profitability is estimated to be negatively related with bank’s leverage ratio. It implies that profitable firms in the Zimbabwean commercial banking sector maintain low debt to equity ratio. This result is consistent with predictions of pecking order theory, which predicts a negative correlation. It states that firms prefer to finance first with internal funds before raising external financing. Further, this outcome is also consistent with the most previous studies (Titman & Wessels, 1988; Rajan & Zingales, 1995; and Booth *et al.*, 2001). Hence, for the inverse relationship between profitability and financial leverage, it can be concluded that highly profitable commercial banks in Zimbabwe maintain low debt to equity ratio and they utilise more equity source compared to debt for making their capital structure. The defaulted banks also show negative profitability. However, the top international banks’ profitability is positively related to leverage. This is in line with the static trade-off theory. The theory states that profitable firms are expected to have high leverage since they have more shield from taxes. Bauer (2004:5) notes that most empirical studies predict a negative relationship between leverage and profitability (Booth *et al.*, 2001; Huang & Song, 2002; and Rajan & Zingales, 1995).

4.5.2 Leverage with tangibility

Beta coefficient associated with Tangibility (TN) in Section 4.3.1 proves that there is a positive relationship between tangibility and capital structure of commercial banks in Zimbabwe. In this study, the sign of tangibility variable coefficient is found to be positive. However, the observed sign coincides with static trade-off theory and pecking order theory that hypothesize a positive relationship between leverage and tangibility. The observed sign suggests that firms with high tangibility tend to finance their investments with external financing, and they are inclined towards debt over equity. In general, tangibility’s observed positive relationship with debt to equity ratio is generally consistent with prediction and hypothesis that firms with higher ratio of fixed assets serve as

collateral for new loans, favouring debt. Defaulted banks also show a positive relationship between tangibility and leverage. The top international banks show a negative relationship, in line with the agency costs theory. Studies such as Booth *et al.*, (2001) in ten developing countries, and Huang and Song (2002) in China, found that tangibility is also negatively related to leverage.

4.5.3 Leverage with size

The result of beta coefficient linked with size (SZ) in Section 4.3.1, proves that there is a positive relationship between leverage and size of commercial banks. This study found size to be highly statistically significant at the 5% level and have a positive impact on the commercial bank's leverage. This suggests that larger commercial banks in Zimbabwe tend to have higher leverage ratios and borrow more capital than smaller commercial banks do. To express it in figures, assuming other determining factors are constant, for 1 unit increase in size, there is a 0.956-unit positive increase in debt to equity ratio. The observed result is consistent with the result of static trade-off theory as well as the agency costs theory.

Major empirical studies have also found a positive relationship between size and leverage. For instance, Titman and Wessels (1988); Rajan and Zingales (1995); and Booth *et al.*, (2001) provide the evidence of significant and direct relationship between size and capital structure measure. Since the result of the size variable indicates insignificant statistics, it is estimated that size does not have a significant role in making debt ratio and determining the capital structure of Zimbabwean commercial banks.

According to Titman and Wessels (1988), unlike smaller firms, larger firms may increase their leverage ratio easily because they tend to benefit from diversification and economies of scale, which makes their earnings less volatile than smaller firms. The debt holder also knows that a larger firm will likely pay back the capital and interest as compared to lending to smaller firms, thereby reducing the agency cost that is associated with debt and hence, large firms can have higher debts.

Larger firms tend to have fairly less chances of insolvency and higher debt capacity because they have lower information asymmetry and consequently, they are more likely

to have easier access to debt markets and to borrow at lower cost. They may select to use more debt to exploit their tax benefits. According to Antoniou *et al.* (2008:30) small firms have lack of profitability, hence, they are forced to issue relatively more equity than debt.

Top international banks and defaulted banks show a negative relationship between size and leverage. This is in line with the pecking order theory. Empirical studies by Titman and Wessels (1988); and Kim and Sorensen (1986) report a negative relationship between size and leverage.

4.5.4 Leverage with growth

Beta coefficient linked to growth (GR) in Section 4.3.1 has a positive result and is consistent with pecking order theory but contradicts static trade-off theory and agency costs theory. Defaulted banks also report a positive relationship. Based on the pecking order theory, high growth firms use less debt. According to the pecking order theory, when internal resources of growing firms are not sufficient to finance projects with positive net present value, firms may have to issue debt before equity. This implies that growth opportunities and leverage are positively related. The top international banks report a negative relationship in line with the agency costs theory. Titman and Wessels (1988:12) explain that agency costs associated with the agency relationship between debtholders and shareholders are likely to be higher for firms in growing industries. According to Myers (1977:148), firms with high future growth opportunities should use more equity financing, because a higher leveraged firm is more likely to pass up profitable investment opportunities. As Huang and Song (2002:9) claim, "Such an investment effectively transfers wealth from shareholders to debtholders." Therefore, a negative relation between growth opportunities and leverage is predicted.

4.5.5 Leverage with volatility of assets

The beta coefficient in Section 4.3.1 shows that there is a positive relationship between leverage and volatility. The findings are similar to those for both the defaulted banks and the top international banks. The positive relation between volatility and leverage is confirmed by Kim and Sorensen (1986); and Huang and Song (2002). Huang and Song

(2002:9) based on findings of Hsiao (2007:12) state that, “As the variance of the value of the firm’s assets increases, the systematic risk of equity decreases. So, the business risk is expected to be positively related to leverage.”

4.5.6 Conclusion

In conclusion, the determinant factors of capital structure decisions in Zimbabwean commercial banks indicate a strong compliance to the static trade-off theory and the agency costs theory. However, the negative effect of profitability to capital structure decision indicates a strong compliance to the pecking order theory of capital structure. The trade-off theory suggests that firms would react to risk by reducing leverage, since they are more subject to experiencing financial stress; thus, lowering the amount of debt carried, consequently, lowers the risk of financial distress. The predictions of the pecking order theory are, again, somewhat ambiguous. To the extent that high volatility indicates asymmetric information, it would predict a positive relationship. However, if high volatility is not a result of asymmetric information, the pecking order theory does not predict any relationship, as is the case with the market timing hypothesis (Frank & Goyal, 2003:218).

The defaulted banks indicate a strong compliance to the pecking order theory, whilst the top international banks included in this study do not show a strong compliance to any one theory. They seem to comply with the static order theory for profitability and volatility; for growth and tangibility, the agency costs theory is complied with; whilst for size, it is the pecking order theory. Thippayana (2014:1074) states that capital structure decisions are one of the most important issues in financial management which can contribute in maximising the firm’s value. Evidently, there are other factors that determine a bank’s financial management. The Deputy Governor of the Reserve Bank of Zimbabwe, Dr. C.L. Dhliwayo (2015:8), cites several factors that led to bank failures in Zimbabwe as, “chronic liquidity problems, deep rooted risk management deficiencies and poor corporate governance practices”. Therefore, a mix of the various factors makes a bank survival to collapse. It should be noted that capital structure decisions alone will not make a bank survive.

4.6 Summary of research findings

From Section 4.5, it can be noted that the Zimbabwean banks analysed operate similarly to the developed banks. They are also highly levered. The mean for leverage was 88% for the banks analysed, as discussed under Section 4.3.2.1. In addition, the types of financing seem to be the same as those for the banks analysed in earlier studies. The total deposits contributed the bulk of the banks' financing (Barclays-42%; CBZ-67%; NMBZ-71%; FBC-66%; ZB-38%). Even though the country is going through liquidity challenges, deposits remain the main source of financing. The tenure of the deposits is shorter, therefore affecting the tenure of the loans as well.

This study found that profitability is negatively related to leverage at 0.2% (Section 4.3.3). This result is consistent with results from other studies (Rajan & Zingales, 1995; and Amidu, 2007). The negative relationship implies that with every 1 percent movement (decrease/increase) in profitability of a bank, there will be a 0.2% change in leverage in the opposite direction. Thus, higher profits increase the level of internal financing by Zimbabwean banks. Shibu, Kedir & Mekonnen (2015:50) state that profitable banks accumulate internal reserves and therefore, they place less reliance on external forms of financing. This result is consistent with the pecking order theory, which suggests that profitable firms prefer internal financing to external financing.

The findings in this study show that size has a positive relationship with leverage and it is statistically insignificant ($p > 0.000$) at 5% significant level (Section 4.3.3). Every 1 percent change in the banks size, keeping all other factors constant, will have a 17% change in leverage in the same direction. The bigger the bank, the more external funds it will use because lenders tend to perceive larger banks to have lower risk levels and larger banks can borrow more easily because of better reputation and diversification. This is consistent with the pecking order theory and agency costs theory. Studies by Titman and Wessels (1988); Rajan and Zingales (1995); and Booth *et al.* (2001) also indicate a positive relationship between leverage and size.

Volatility has a positive result, but is statistically insignificant ($p > 0.005$) at 5% significance level (Section 4.3.3). The pecking order theory is consistent with the result. An increase or decrease by 1 percent on volatility of assets causes a change in leverage by 25% in

the same direction. This means that big banks with more assets have higher leverage. A decrease in assets causes a decrease in leverage.

The analysis shows that tangibility has a positive result and is statistically insignificant ($p > 0.05$) at 5% significance level (Section 4.3.3). This means that every 1 percent change in the banks' tangibility, keeping all other factors constant, will have a 35% change in leverage in the same direction. That means that the higher the tangibility, the more the leverage, because the firm will have fixed assets to pledge as collateral to the lenders. The positive relationship is consistent with previous research (Rajan & Zingales, 1995; Frank & Goyal, 2009). The findings are consistent with the pecking order theory, agency costs theory, and static trade-off theory.

Growth had a positive relationship with leverage, but is statistically insignificant ($p = 0.190$) at 5% significant% change in leverage in the same direction. The findings are consistent with the pecking order theory. According to the theory, growing firms may need external funding to expand since internal funds may not be enough, therefore, firms will prefer debt to equity because it is cheaper.

From the financial statement analysis in Chapter 2, ratios were calculated for the three data sets and it is evident that the defaulted banks' performance indicates inefficiencies. Refer to Table 32 for a summary of the ratios.

To address secondary objective 3 (to evaluate the impact of the financing decisions made by banks within Zimbabwe banking climate), research was carried out on the Zimbabwean banking climate. The Zimbabwean banking sector, though quite advanced, experienced quite a high number of failures within a short period. Over 10 local banks defaulted within 10 years. There are various reasons for the collapse of the local banks. Various authors (Dhliwayo, 2015:8; Chikoko & Hove, 2012:2) note several reasons why Zimbabwean local banks failed. These include, but are not limited to the following:

- macro-economic challenges;
- incompetent local management;
- undue influence or dominance by a few shareholders;

- poor corporate governance structures and improperly constituted board structures;
- Lack of RBZ supervision;
- imprudent lending practices and concealing losses and NPLs (especially related party loans) related party insider lending at zero interest;
- Excessive risk taking and over trading, deep rooted risk management deficiencies, failure to manage risks compounded by rapid expansion in operations in the absence of appropriate policies and controls;
- failure to enforce compliance and failure to interrogate management reports; and
- regulatory arbitrage through abuse of group structure, banks engaged in non-banking activities to increase profits leading to excessive risk exposure.

The foreign owned banks operating in Zimbabwe seem to be performing better than the local banks. The quarterly banking sector report states that there are 13 commercial banks as at 31 December, 2015. Of these 13 commercial banks, four banks are subsidiaries of foreign owned banks. This makes up about 31% of the total commercial banks. The top five commercial banks are CBZ, Standard Chartered, Barclays, Stanbic, and Banc ABC. Of these, three banks are foreign owned.

Classens and van Horen (2009) in their research, note that foreign owned banks have advantages if they are from a home country that is highly developed and entering a country with limited competition. This applied in the Zimbabwean context for the foreign owned banks. The foreign banks tend to perform better when from a high-income country and when competition in the host country is limited. They also added that the foreign owned banks perform better when they are large and rely more on deposits for funding, when they have more diversified funding bases, including having access to external liquidity from their parent banks, thus, lowering their funding costs. By being larger, they may afford more sophisticated models, giving them more superior risk management skills. According to a survey by the Industrial Psychology Consultants (IPC), Zimbabweans now prefer to keep their money with foreign owned financial institutions over local banks due to perception over stability. This, therefore, strengthens the foreign owned banks at the expense of the local banks. In addition, Sibanda and Chikoko (2013:72) explain that the new capital requirement of USD\$100 million, coupled with a low savings culture and

increased loan impairments in the economy, is likely to exacerbate bank failures. This is because the local banks might not get investors willing to inject more capital. But the foreign owned banks have the backing of the parent banks overseas.

The listed local banks' performance was stable over the period of analysis. The deposits increased from year to year as well as interest income. The banks are not struggling to meet capital requirements. CBZ already met the 100 million capital requirement, effective 2020. The listed banks have various minority shareholders, therefore, no undue influence by dominant shareholders. From the annual reports, the researcher notes that the listed banks have effective, properly constituted board structures, and competent management. The RBZ now supervises the banks unlike waiting to take corrective action when things go wrong. The RBZ does onsite examinations based on the CAMELS approach and rates the banks. In addition, the banks are also given external credit ratings for risk by the CGR.

Therefore, in conclusion, the stable listed banks should guard against improper trading practices that led to the closure of banks like Afrasia. They should maintain sound trading practices such as those adopted by the top international banks to ensure survival into the future. The RBZ should also provide strict supervision and ensure that issues are identified and rectified in time rather than to wait to take corrective action.

4.7 Conclusion

The aim of this chapter was to present the findings from the empirical study done on five Zimbabwean banks over a period of four years, whilst the main purpose of the study was to ascertain factors affecting financial decisions and corporate governance structures of commercial banks in Zimbabwe. It was the aim of the research to determine if banks' capital structure is entirely influenced by regulation, or if the standard determinants of capital structure also significantly explain the bank capital structure. Banks are quite different from other non-financial firms in that they raise the bulk of their funds through client deposits. This was the first study done for banks in Zimbabwe.

Several tests on the data were done to ensure that the data gives reliable results and to ensure that the model was fit for the data analysis. A number of tests in that regard were conducted. Tests of normality, multicollinearity, heteroscedasticity, independence, and

outliers' detection were performed on the data. It was concluded that the model is fit for the data and therefore, it would give reliable results. The pecking order theory seems to be the pertinent theory. Profitability, volatility, tangibility, and size are consistent with the pecking order theory, whilst profitability, tangibility, and size are consistent with the agency costs theory. There is also little evidence to support the static trade-off theory in Zimbabwean banks, which is supported by tangibility and size.

Data analysis was performed using correlation analysis, panel data analysis, descriptive statistics, and financial statement analysis. The findings show that all the five chosen variables are statistically insignificant ($p\text{-value} > 0.00$) at 5% significance level in determining the capital structure of Zimbabwean banks. The model was also insignificant with an adjusted R squared of -0.038. These results are not consistent with findings from other research. For instance, the empirical research by Chidoko (2012) aimed to determine the major determinants of capital structure for firms listed on the Zimbabwe Shares Exchange from 2000 to 2008. The findings showed that tangibility and size show a positive significant relationship, whilst profitability had a significant negative relationship. The research by Mutenheri and Green (2003) concludes that growth and tangibility were significant.

Profitability ratios such as ROI and ROE were also analysed and they indicated the poor performance of default banks. Irrespective of the capital structure theory, their downfall was probably due to poor financial management and poor corporate governance. In comparison with the top international banks, the defaulted banks had negative ratios indicating poor performance. There was no growth in loans and deposits, and no return on assets or equity employed for the defaulted banks.

This study's inconsistent findings could be as a result of generalisation or other unfavourable effects inherent in the data used for the analysis, or it could be that the MM 1 proposition holds in the Zimbabwean financial services context. Myers (2002) mentions that there does not seem to be a universal theory of capital structure, the theories are merely conditional theories. Therefore, factors that may be significant in one context may appear insignificant in another, resulting in inconsistencies. An interesting future research area would be to find possible explanations for these contrasting results.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarises and concludes the research findings, points out limitations of the study, makes recommendations to stakeholders, and offers areas for future research. The main objective of the research was to determine the factors affecting financing decisions made by the banks listed on the Zimbabwe Shares Exchange from 2010 to 2014.

5.2 Summary of chapters

Chapter 1 of the study introduced the problem statement and the contribution the research will make to the body of knowledge. Several studies have been done around capital structure, but little has been done regarding the capital structure decisions for banks in developing countries, particularly Zimbabwe. Therefore, the study sought to contribute to the body of knowledge by researching the capital structure of banks in Zimbabwe.

Chapter 2 was a comprehensive review of literature, and sought to create an outline for the study by classifying the important issues in capital structure. Capital structure was defined, and the theories and determinants of capital structure discussed in detail. Empirical evidence from prior studies was also reviewed from both the developed and developing countries. A brief background to the Zimbabwean banking industry was also provided in the chapter.

Chapter 3 explained the methodology of the study. Definitions and measurements of the variables were well defined in this chapter. Chapter 3 created the foundation for understanding the subsequent empirical analysis. The overall purpose of this research is to determine if the explanatory variables of capital structure that affect the non-financial firms in the developed countries also affect the banking industry in Zimbabwe. The goals of this study were divided into primary and secondary objectives, and were achieved through empirical study. The target population, from which the sampling frame was

selected, was described in detail. The sampling method and sample size were also discussed. Furthermore, the measuring instrument and data collection method(s) were discussed. The dependant and explanatory variables were defined, and critically analysed. Lastly, the statistical analysis methods employed were explained in detail.

Chapter 4 sought to present the results of the data analysis and the corresponding discussions. Tests of panel data assumptions were done, followed by the presentation of results for ratio analyses, descriptive statistics, correlation analysis, and panel data analysis. The determinants of capital structure in the case of Zimbabwean banks were explained and juxtaposed with that of developed countries, as well as the top five international banks. The research also explained in detail the ratio analyses performed, the possible reasons why the defaulted banks failed, whilst the listed banks and the top international banks, performed well.

Chapter 5 is the concluding chapter, where all the chapters and findings are summarised, and an overall conclusion is reached. The limitations to the study are highlighted, and recommendations for future research are given.

5.3 Summary of findings

As stated in Chapter 1, the study sought to investigate the financing decisions of Zimbabwean banks and empirically investigate if the chosen explanatory variables significantly influence leverage. To establish whether or not capital structure is relevant, a panel data regression was done on chosen banks in Zimbabwe.

The analysis found the regression model to be insignificant with the adjusted R squared of -0.038%. There were no explanatory variables that were significant, but tangibility and volatility of assets had 35.1% and 24.7% respectively. Profitability was negatively related to leverage at (-0.002%). Size, profitability, and growth were found to be highly insignificant in explaining leverage at 18.6%, -0.002%, and 16.8% respectively. The findings are somewhat inconsistent with findings from previous scholars. For instance, Chidoko and Hove (2012) found a significant relationship between leverage and size, whereas this study found size to be insignificant. They also found a negative relationship with profitability, which is in agreement with findings from this research. Mutenheri and

Munangagwa's (2015) study showed that profitability and size are significant factors. Mutenheri and Green (2008) also found out that growth and tangibility are significant determinants of capital structure, whereas these two variables were insignificant in this research.

Descriptive statistics analysis was also carried out. The mean, mode, median, minimum, maximum, and range were computed. The average (mean) for leverage of Zimbabwean banks was found to be 88% and this indicates that the banks are financed (leveraged) with debt at approximately eight times greater than the equity option. That means the banks' financing decision is inclining to deposit mobilisation than to the equity financing. The average annual profitability of the banks under investigation is found to be -0.2%. The variance rate is 0.009 %, which indicates the individual banks have constant profitability rate every year.

The mean for asset composition (tangibility) is found to be 11.31% of the total assets. Due to the nature of the business, banks have high current assets, which is equal to approximately 88.69%. The banks' total assets have an average growth rate of 14.65% for the four years of the study period. The mean for the banks' volatility of assets, calculated as the standard deviation of change in total assets, is 348%.

Since the seminal paper by Modigliani and Miller (1958), capital structure remains an important and significant issue for academicians and corporate managers. This area has been researched by many prominent scholars, namely Modigliani and Miller (1958); Myers (1977); Ross (1973); and Jensen and Meckling (1976). However, capital structure has extensively been studied in the developed countries, but only few studies focus on developing countries like Zimbabwe.

Many theories were developed as a result of the extensive studies by scholars in the field, i.e. the Modigliani and Miller propositions, static trade-off theory, pecking order theory, agency costs theory, market timing theory, the net income approach, and the net operating income. The theories involved in capital structure, have been researched by scholars such as Titman and Wessels (1988); Harris and Raviv (1991); and Frank and Goyal (2003) amongst others. In this study, firm-specific determinants (internal factors) were examined in the context of Zimbabwe. A total of five variables, namely; profitability,

tangibility (collateral value of assets), size, growth, and volatility of assets; were selected from renowned previous research works on capital structure. In addition, five years (2010-2014) audited annual financial statements of seven commercial banks in Zimbabwe were included in this study. For analysis, this study employed a panel data regression analysis. The capital structure of the banks is measured by one aggregate measure of leverage. Therefore, the dependent variable is regressed against the five mentioned explanatory variables.

The purpose of the study was to determine the factors affecting the financing decisions made by the banks listed on the Zimbabwe Shares Exchange from the period 2010 to 2014. The theoretical and empirical objectives formulated in Chapter 1 of the study were all achieved.

Objective 1 was addressed as it was noted in Chapter 2 that though there are various forms of financing available (demand deposits, wholesale deposits, equity), the Zimbabwean banks seem to favour demand deposits as a method of financing. This is in line with the international banks' financing decisions. In addition, from descriptive statistics in Section 4.3.2 (Chapter 4), it was also noted that the Zimbabwean banks are financed by debt, eight times more than equity, and the mean for leverage ranged from 73% to 95%.

Objective 2 was achieved and it was noted that in Section 2.3 (Chapter 2), unlike non-financial firms, regulation plays an important part in determining the financing decisions for banks. For example, in Zimbabwe, commercial banks are expected to hold USD\$25 million (USD\$100 million in 2020) as capital. These regulatory requirements may be onerous and this resulted in massive bank defaults.

Objective 3 was discussed in Section 4.6 (Chapter 4) and it was noted that coupled with onerous regulatory requirements, financial mismanagement as well as lack of good governance practices also led to loss of bank licences of over ten banks in Zimbabwe. In addition, macro-economic challenges, incompetent local management, and undue influence or dominance by a few shareholders, led to the collapse of a significant number of banks in Zimbabwe.

Through the empirical study, it was also noted that the Zimbabwean commercial banks listed on the ZSE follow the pecking order theory more than the agency and trade-off theories of capital structure.

5.4 Recommendations

The findings of this study are deemed to benefit a number of stakeholders. These include, but are not limited to: investors, professional managers, lenders, academicians, and policy makers in the country. Therefore, the following recommendations have been drawn.

To investors and shareholders

External investors and shareholders should value the discussed variables that regulate the capital structure of a particular commercial bank, and observe its potential before making decisions on whether or not to buy or sell its particular shares.

To commercial bankers

The study has identified the determinants of capital structure of commercial banks of Zimbabwe. Hence, commercial banks should (constrained by the policies and regulations of the Reserve Bank of Zimbabwe) specify standards to determine the amount of debt to equity ratio. Consequently, CEOs and finance managers of commercial banks should consider the findings of this study to make appropriate capital structure decisions that are appropriate for their respective banks' financing needs.

To lenders

Before moneylenders seek out to shield themselves from excessive use of corporate leverage through the use of protective contracts, they should consider the capital structure determinant variables studied above to assess and predict the risk linked to lending capital to their respective borrowers.

To policy makers at different levels

Zimbabwean commercial banks' capital is found to depend more on debt financing than on equity financing. This is an indication of a business environment that investors could buy and sell their shares and firms in the country, and could raise capital for their projects. Capital markets are, therefore, one of the instruments that potentially switch firms' financing from short- to long-term securities, and investors' attention from short-term investments to long-term investments, which promote the mobilisation of private investment on public debt and equity issues.

The lack of superior databases might be the major barrier on conducting capital structure research in Zimbabwe. Therefore, there is a need, for policy makers at different levels, to design policies and procedures which guide organisations to develop authenticated databases as more data becomes available in future. Using such databases can help in examining and identifying additional variables that could influence the financing behaviour of Zimbabwean firms.

5.5 Limitations of the study

There are limitations associated with this particular study. These will provide avenue for directions for future research. Some of the limitations identified, are discussed below.

1. The study only investigated the three main theories, namely, the static trade-off theory, the pecking order theory, and the agency costs theory. Other theories such as the market timing theory were not investigated.
2. Only five determinants of capital structure, which are firm specific, were investigated, namely; size, growth, profitability, volatility, and tangibility. Other external (macroeconomic) variables such as inflation, GDP growth, interest rate, corporate governance, legal framework, and impact of the country's financial system were not included.
3. The determinants selected can have a lot of definitions. However, only one definition per variable was employed in the study. The definitions were chosen based on availability of data.

4. Panel data regression was employed in the study. There are a number of other statistical methods which may have been employed.
5. Four years were analysed in the study, and ten banks were selected for the analysis. This is because Zimbabwe has been going through a lot of changes (e.g. Zimbabwean dollar era up to 2008/9, then multi-currency regime thereafter). The economy was dollarized in 2010. Therefore, 2010 was selected as a base year. Availability of data required commenced from 2011.
6. Only one measure of leverage was used, and it was the book value. No market value measures were used.
7. The research only focused on banks in Zimbabwe, and the other sectors were excluded.

5.6 Recommendations for future research

1. For the sake of this research and for the sake of simplicity, the emphasis was on a single measure of leverage, that is, total debt over total assets. Apparently, factors that affect short-term debt and long-term debt might be diverse. Henceforth, further studies should be made including different measures of leverage.
2. Both dependent and independent variables are not sufficiently defined owing to time limitations and shortage of data. It is imperative that these overlooked variables and other measures of the included variables to be taken into account in future capital structure studies.
3. Other significant external (macroeconomic) variables such as inflation, GDP growth, interest rate, corporate governance, legal framework, and influence of the country's financial system should be added, besides the firm-specific factors, to determine the capital structure of firms.
4. In this study, the researcher has mainly examined the factors that influence financing mix of commercial banks in Zimbabwe. It might be interesting and crucial to extend this research to other sectors of the economy in the country.
5. A comparative analysis of the capital structure decision of firms across developing countries can give an enhanced picture about what really determines their capital

structure decisions. Therefore, studies should be made across countries on determinants of capital structure decisions in order to obtain vivid understanding about whether or not macroeconomic conditions influence capital structure decision of commercial banks, and if so, to what extent may be the case.

5.7 Conclusion

The study revealed insightful information regarding the situation of capital structure in Zimbabwe. It has highlighted new perspective on capital structure of Zimbabwean banks listed on the ZSE. It was evident from the study that the Zimbabwean banks listed on the ZSE follow the pecking order theory of capital structure. The five independent variables that were tested empirically were all found to be statistically insignificant at 5% significance level. These findings are not consistent with previous research on capital structure, both nationally and internationally. It is evident, therefore, that besides capital structure, there are other factors that affect the financing decisions of banks. These include good corporate governance, good financial management, ethical boards. Therefore, it would be beneficial to do further empirical research in the future to determine these other factors and possible reasons for the inconsistencies.

Based on the research findings, the objectives stated in Chapter One (1) were achieved.

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