CAPITAL STRUCTURE AND PERFORMANCE OF COMMERCIAL BANKS IN ETHIOPIA

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Declaration

I undersigned declare that this Research report is my original work and has not been presented for a degree in any other university, and all the materials used for this study have been duly acknowledged.

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Abstract

Capital structure decision is one of the most crucial decisions of finance manager since it has relation with the performance of the firm. This study examines the relationship between capital structure which is proxies by TDTA and TDTC and performance which is proxies by ROA, ROE and NPM of commercial banks in Ethiopia based on eight sample banks for the period from 2000-2012. Panel data were used for the study, collected from annual reports of sample banks analyzed using the fixed-effects techniques. In related with the regression analysis various tests were conducted for the assumption of CLRM. The results of the regression analysis indicate that commercial banks in Ethiopia are highly levered and except significant positive and insignificant positive relation of ROE with TDTC and TDTA, leverage has an inverse relation with performance of the bank. Further, the size of the bank has significant positive association with all performance measurement variables. These findings are consistent with the hypothesis of the study. The finding imply that there are evidence which support both trade off theory and packing order theory of capital structure in the Ethiopian banking industry and capital structure has a positive or negative association with performance. Therefore, the bank makes its capital structure at optimal level by raising funds from equity finance by participating in the secondary market in order to enhance its performance in related with capital structure.

Key word: - *Capital structure, Financial performance, Commercial banks, ROA, ROE, NPM, TDTA, TDTC, Size.*

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List of Acronyms

AIB: - Awash international bank

BOA: - Bank of Abyssinia

CBB: - Construction and business bank

CBE: - Commercial Bank of Ethiopia

CLRM: - classical linear regression model.

DB: - Dashen bank

EPS: - Earnings per Share

LTD: - Long Term Debt to Total Asset

NPM: - Net Profit Margin

MBVR: - Market Value of Equity to Book Value of Equity

MM: - Modigliani and Miller

NIB: - Nib International Bank

NSE: -Nigerian Stock Exchange

PSE: - Palestinian Stock Exchange

ROA: - Return On Asset

ROE: - Return On Equity

SPSS: - Statistical Package for Social Sciences

STD: - Short Term Debt to Total Asset

TDTA: - Total Debt to Total Assets

TDTC: - Total Debt to Total Equity

UB: - United Bank

WB: - Wegagen Bank

CHAPTER ONE

1. INTRODUCTION

This chapter starts by presenting a brief background that sets the study into context. After giving some insight on capital structure theories, in the statement of the problem part, the paper justify the reasons that make visible to carry out this study. Following the statement of the problem part, the general and specific objectives of the study are presented. Then, the next section presents the research hypothesis which the study tested against the econometric result. Lastly, in the subsequent section; first significance of the study then, scope and limitation of the study and finally the organization of the paper are presented in their order.

1.1. Background of the Study

Capital structure is the method in which a firm's assets are financed. It is the right-hand side of the balance sheet and expressed as the percentage of each type of capital used by the firms which include debt and equity. Business could not exist without financing fixed assets and working capital requirements. There are three primary sources of finance for companies, which include; Cash surplus from operating activities, new equity funding and borrowing from bank and non-bank sources. These parts of capital structure reflect fund ownership structure which means the first two reflect ownership by the shareholder whereas, the last represent ownership by the debt holder. By considering different factors, the concerned body mostly the management decided the appropriate mix finance. The firm that utilizes more debt financing in it is capital structure, the more the company become financially leveraged. The degree in which the firm depends on debt in it is capital structure is called financial leverage. A firm is said to have high degree of financial leverage, if it uses more debt in it is capital structure (Ross et al., 2003).

Modern capital structure theory began in 1958, when Modigliani and Miller (MM's) proved under a very restrictive set of assumption that the value of the firm is not affected by the mix of debt equity ratio. Even though modern capital structure theory is started by Modigliani and Miller in 1958, then after a bundle of theory are developed to relax the assumptions of MM theory in order to develop a more realistic theory of capital structure. Modigliani and Miller

showed that financing decisions does not matter in perfect markets. In their famous proposition I, states that the value of the firm is not enhance by dividing it is cash flow in to different set security instead, the worth of the company is determined by the amount of the real asset in the company. This indicates that the irrelevance of capital structure decision for the value of the firm as long as the firm's investment decisions is taken as given. Under MM's proposition II, the expected rate of return on the common stock of a levered firm increases in proportion to the debt–equity ratio (D/E), expressed in market values (Myers, 2003). Later by considering the effect of corporate tax shield on interest payment, in 1963 Modigliani and Miller (MM) revisit their paper. In their study which is made in 1963, they demonstrated that the existence of corporate tax create a distinction between the value of levered firm and unlevered firm.

The capital structure theory established by Modigliani and Miller in 1963 provides some insights for the value of debt versus equity financing of the firm. Following their work on capital structure, there are different alternative theories of capital structure have been developed. The most prominent theories which explain the capital structure of the firms are static tradeoff theory, pecking order theory and agency theory. The original version of the trade-off theory grew when Modigliani and Miller add corporate income tax in 1963 to the original irrelevance proposition which created a benefit for debt in that it served to shield earnings from taxes (Frank and Goyal, 2005). Under-static tradeoff theory, if the value of the firm is maximizing, the firm is able to interchange debt for equity or equity for debt. The optimal debt ratio is determined by a benefits and cost of borrowing holding the firms asset and investment plans constant. Myers (1984) and Myers and Majluf (1984) developed the Pecking order theory of capital structure. Under Pecking order theory, the firm financing decision initially made by using internal source of fund and if it is not enough external source of financing is used by the firm. Accordingly the preferences are, first target dividends, then chose debt and lastly focuses on equity (Myers, 1984). After the study made by Jensen and Meckling (1976), there are vast literature developed on agency theory to explain the capital structure. According to the agency theory, the agent performs certain services on the behalf of the principal. When the agent performs its activities on behalf of the principal there might be a

possibility that the agent accomplish task for their own interest instead of maximize the benefit of the principal. This in turn affects the capital structure decision of a firm.

A lot of studies are conducted on the relationship between capital structure and performance of a firm worldwide. Most of these studies concentrated on different segments of different economies and industries as well with little attention to the financial services sector. Particularly, in Ethiopia one of under-researched area in the banking industry is banks capital structure. Banks are one of the most prominent financial institutions in the country which serve as the financial intermediary to ensure efficient mobilization and disbursement of funds to the real sector of the economy. According to Saunders et al (2004) Cited in Gartichie and Kofi (2012), banks are the major provider of funds for other businesses. So, they are the most highly geared and risky business in any economy.

Even though some studies are made on the firm capital structure, they are not describing the relationship between capital structure and performance of the firm in Ethiopia. Specifically, there was few research papers are done on commercial banks in Ethiopia related with this thesis. As to the knowledge of the researcher the studies are Shibru (2012) who examined determinants of capital structure of commercial banks in Ethiopia, Yaregal (2011) made a comparative analysis on ownership structure and organizational performance of banks in Ethiopia, Kapur and Gualu (2012) made an empirical analysis on the impact of ownership structure on performance of commercial banks in Ethiopia and kebede (2011) investigated the determinants of capital structure in Ethiopia small scale manufacturing co-operatives. However, to the best of the researcher's knowledge, no study conducted on capital structure and Performance of commercial banks in Ethiopia.

1.2. Statement of the problem

Capital structure decision is one of the most important decisions that firms make to determine the mix of debt equity ratio. When the manager aware the effect of capital structure on performance, the decision become efficient and effective. This is because, if a company sets its capital structure at optimal level, it enhances the value firms in the industry. As a result, the capital structure theories become one of the most important theories in the enterprise

financing policy following the work of Modigliani and Miller (1958). Subsequent to their study, there are a number of researchers made studies to investigate the role of capital structure which include Myers (1984) and Jensen and Meckling (1976). These is because market is not perfect as the assumption of Modigliani and Miller made in 1958 without consideration of tax since there is tax, asymmetric Information, transaction and bankruptcy costs with the optimal capital structure.

According to Kinsman and Newman (1999), the examination of the relationship between capital structure choice and performance is necessary for many reasons. First, firms' debt level has risen substantially over the last few years, requiring an explanation of the impact of debt level on firms' performance. Second, since managers and investors may have different interests, the relative strengths of any specific effects of debt on firms' performance must be known. Finally, studying debt level and firm performance allows examining the association between debt level and shareholders wealth.

Related with capital structure theories, a lot of literatures are developed to examine the relationship between capital structure and performance of a firm. According to Amidu (2007) cited in Shibru (2012), there is no clear understanding about choice of capital structure and factor that influence corporate financing behavior of a companies. This is due to the controversies on the application of capital structure theory. Thus, capital structure theories are utilized based on various factors which include the size of the firm, the dividend policy, the amount of cash flow and the like. Depending on these factors, the capital structure decision differs from one firm to another; this affect the performance of the companies positively or negatively.

Empirical studies made around the world also have an indication for inconsistency of capital structure choices of the companies. The study made by Zeitun and Tian (2007) on the companies in Jordan provide a result of significant negative association between capital structure and performance of companies in Jordan. The finding of the study made by Saeedi and Mohoodi (2011) indicate that capital structure has a positive or negative association with performance of the firm in Iranian. The conclusion of the finding made by Pratheepkanth (2011) is capital structure and performance has a negative association for the companies in Sri

Lanka. The finding of the study made by Gupta and etal (2011) revealed that in the national stock exchange of India high profitability and good performance has an inverse relation with debt.

Studies also conducted to see the direction of relationship between capital structure and performance of the firm in Africa. Adekunle and Sunday (2010) indicate that capital structure is an important determinant of firm's financial performance and the direction of the relationships is reversed for the firm in Nigeria. The conclusion of the study conducted by Ebaid (2009) on Egyptian stock exchange report capital structure has a weak to no effect on performance. Abor (2005) made a study on the Ghanaian Stock Exchange and he find that profitable firms depend highly on leverage as a source of finance. Awunyo-vitor and Badu (2011) finds that capital structure is negatively related to the banks performance for the banks in Ghana.

Even though there are a number of studies conducted at a global level to examine the relationship between capital structure and performance, most of the studies are made with reference to developed countries. Which means they are not explained the issues for emerging market specifically for Ethiopian case. This is due to the market structure of one country is not similar with other country. Specifically, the Ethiopian financial market has it is own features like; financial sector of the country is not well developed, much of the total capital of the banks are made up of debt which implies that the banks are highly levered institute, the majority of asset in the industry is largely controlled by one bank which is commercial bank of Ethiopia and highly regulated and closed. So, it is difficult to make generalization for the developing economy from the result of developed economy without making any research.

In addition to the above point, the operation of modern and organized financial institution is the most crucial part for any country to ensure the economy growth and development. The financial sector of Ethiopian economy is dominated by the banks. Banks are the leading industry in financial sector of the country and the major provider of funds to all business in the country. So, it is important to examine their performance related with capital structure. Further, by having a lot of literature on the capital structure and performance banks across worldwide, it is important to examine the case in Ethiopia. The Ethiopian banking industry

has it is own unique features which distinct from other countries financial market. Some of the features are; the regulation of the countries is not allowed foreign nationals or organization fully or partially to acquire share of Ethiopian banks and there is no secondary market. Moreover, as noted by the National Bank of Ethiopia (2009), in the country one of the rapidly growing industries is the banking sector. Consequently, it is visible to conduct a study on capital structure and performance of commercial banks in Ethiopia.

There has not been much research which is conducted to date on the relationship between capital structure and firm performance in countries with emerging economy like Ethiopia. Whereas the impact of capital structure on performance is an intriguing question irrespective of the type of industry. The uniqueness of the nature of banking operation and unique legal and institutional circumstances facing banks make it quite interesting to investigate the relationship between capital structure and performance of banks. The capital structure of banks is not entirely dictated by managerial choices, as various regulatory requirements limit the discretion bank managers have with regarded to the choice of capital structure. Nonetheless, it doesn't mean that managers have no role in the capital structure decision of banks.

In light of the above facts and research gaps, this study examines the relationship between capital structure and Performance of commercial banks in Ethiopia. The distinct feature of this study is that it is conducted in the Ethiopian banking industry by using the recent data and utilizing thirteen years data for selected banks in the country.

1.3. Objectives of the Study

1.3.1. General Objective of the study

The general objective of this study is to examine the relationship between capital structure and Performance of commercial banks in Ethiopia.

1.3.2. Specific objectives of the study

The specific objectives are stated as follows:-

1) To assess the relationship between capital structure and return on equity of the sample commercial banks in Ethiopia.
2) To examine the effect of capital structure on return on asset.
3) To identify the linkage between capital structure and gross profit margin.
4) To see the association between performance and the size of bank.
5) To identify the capital structure theory that best explains the commercial banks in Ethiopia.

1.4. Research Hypothesis

The purpose of this study is to examine the relationship between capital structure and performance of commercial banks in Ethiopia. The empirical studies made around the world demonstrate various outcomes on capital structure and performance of the firm. From the review of empirical literature the researcher perceived that there is inconsistency in the relationship between capital structure and performance of firms. For instance, Saeedi and Mohoodi (2011) found that Performance has positive or negative association with capital structure. According to Gupta and etal (2011), Awunyo-vitor and Badu (2011) and Adekunle and Sunday (2010) performance of the company has an inverse relationship with capital structure. However, Ebaid (2009) concluded that, capital structure choice has a weak to no effect on performance.

In this section the researcher tries to develop testable hypotheses to examine the relationship between capital structure and performance of commercial banks in Ethiopia. The research hypothesis are develop to estimate the sign of the relation by supporting with empirical evidence to examine the relationship between leverage and performance measurement variables; ROA, ROE and PM. In addition to this the association between performance and the size of the bank also hypothesized.

1.4.1. Return on Asset

The theoretical predictions as well as empirical evidences are inconclusive about the relationship between debt and return on assets. if one can consider, as usually done, Return on assets as the equivalent of weighted average cost or return on total capital invested, then as per MM (1958) leverage should have no effect whatsoever on the return on asset of Ethiopian commercial banks. This is also consistent with the empirical evidence presented in MM (1958).

Most of the empirical literature made around the world put the result that capital structure which is measure by ROA has a negative impact on firms' performance. Saeedi and Mohoodi (2011) and Adekunle and Sunday (2010) find out that firm's capital structure have negative impact on the firm's performance which is measured by ROA. While Awunyo-vitor and Badu (2011) find out capital structure has negative but statistically insignificant effect on ROA. Counter to MM (1958), many other empirical studies found a negative association between debt and return on asset. Whereas, Yaregal (2011) noted that the bank with a lower debt capital will report a lesser ROA than a bank with a higher debt capital, even if all other spreads and costs are the same.

According to Stieglitz et al (1993) cited in Kapur and Kassie (2011), one of the problems of letting banking free region is the presence of moral hazard problems that banks, unless tightly controlled, tend to misallocate financial resource entrusted to them by depositors and other debt holders in the banks. More leverage therefore may contribute to aggravate such problems and ultimately negatively affect banks return on total asset invested.

Overall, most of the empirical works in the area suggest that a negative association between debt and return on asset. Thus, the first hypothesis of this study stated as:

Hypothesis 1: There in an inverse relationship between capital structure and performance measured by return on asset (ROA) in the commercial banks in Ethiopia.

1.4.2. Return on Equity

Return on equity is one of the acceptable measurements to evaluate the financial performance of the firm. According to Arimi (2010), the company which has high ROE has a good investment opportunity than that firm which has fewer amounts of ROE.

Following Modigliani and Miller (1958), the effect of increasing financial leverage in the capital structure of firms is one of magnifying financial risk to equity holders. Under the capital market situation assumed in Modigliani and Miller (1958), equity holders should be compensated for the higher financial risks they are exposed to as a result of increasing leverage. According to Modigliani and Miller (1958) cited in Muhammed (2011), compared the two views using an empirical work by F.B Allen and Robert Smith and they observed that consistent with their proposition, leverage and return on equity went in the same direction. In this view, the effect of leverage was presumed such that higher leverage contributes to higher return on equity.

But, other recent empirical works on the relationship between debt and return on equity have found result against Modgliani and Miller (1958). some studies such as Saeedi and Mohoodi (2011) found no significant relationship between capital structure and Return on equity while other studies including Adekunle and Sunday (2010), kaumbuthu (2010) and Awunyo-vitor and Badu (2011) found a negative relationship between debt ratio and ROE. On the other hand some researcher such as Abor's (2005), found a positive relationship between debt and return on equity. As anticipated by Modigliani and Miller (1963), Abor found that highly leverage firms had higher profitability as measured by return on equity.

The apparently contradictory results reported on the effect of debt on return on equity seem to be explained by sector differences. When it comes to commercial banking, of course it is common that commercial banks are highly leverage institutions. If more debt is associated with diminishing or constant return on equity, it is difficult to imagine equity holders of banks would continue to maintain their ownership stakes in the banks. As increasing debt brings added financial risks to equity owners, no reasons could keep equity owners to maintain their stakes in the banks unless commensurate compensation for added risk is awarded them. In fact, considering the concern of the National Bank of Ethiopia (NBE) which regulates the

commercial banks in Ethiopia, it seems that more debt has got to benefit equity holders. The concern of NBE is evident in NBE's minimum equity requirement that Ethiopian commercial banks are expected to maintain (NBE Directive No. SBB /9/1995, Article). As per this standard, Ethiopian commercial banks are expected to keep a minimum balance of 8 percent of equity as a percentage of total assets. While this has the rationale of improving diligence and unnecessary indulgence on risky projects by banks if equity holders have minimal capital at risk, it also suggest that in the absence of such requirements, banks would prefer to have more debt in their capital structure. This must be the case only if equity holders are to gain as a result of more leverage.

The hypothesis of this study agrees with some previous studies and in line with MM (1958) stressing the positive relationship between leverage ratios and ROE, thus an increase in debt equity ratio caused increased in ROE of commercial banks in Ethiopia. That is,

Hypothesis 2: There is a direct association between capital structure and performance measured by Return on equity (ROE) in the Ethiopian commercial banks.

1.4.3. Profit margin

The empirical evidence provides a contradictory result on the relationship between capital structure and profitability of the firm. There are some researchers who agree with the trade off theory that the profitability of the firm has positive relationship with capital structure. According to Mayers (1984), companies which use more debt in their capital structure are profitable. Those researchers argue that levered firm receives the benefit of tax shield advantage. Additionally, if the companies use more debt to enhance financial performance, the manager tries to improve productivity in order to avoid bankruptcy. This is due to the payment of debt is obligatory while the payment of dividend is not obligatory. Moreover, banks are a source of finance for other business organization. Mostly the funds are provided to business organizations in the form of short term and medium term loan facilities. If the banks mainly used long term deposit to finance short term and long term loan, the banks become profitable since the theoretical and duration matching perspectives of the banking industry requires using this funds. So, from this one can conclude that those companies which use

more debt in their capital structure are profitable. For example Siddiqui and Shoaib (2010), argue that profitability of the bank significantly increases with the increment of leverage.

Most of the empirical evidence of the previous studies on the relationship between capital structure and profitability is consistent with the pecking order theory. According to Meyers (1984) and Myers and Majluf (1984), the pecking order theory prefer to finance firms first by retained earnings then debt and as a final option, assets are financed by equity capital. Those researchers argue that internal source of finance particularly using of retained earnings is cheaper than external source of finance which is exclusively the use of debt and equity. This is because the cost that is associated with information asymmetries that exist between managers and outside market participants. Kaumbuthu (2010) state that;

> *"Less profitable firms facing a positive NPV investment opportunity will be more willing to use external funds if cash flows are weak. Therefore, there will be a negative relationship between leverage and profitability".*

According to Fama and French (1998) cited in Gartchie and Kofi(2012), tax benefit is not necessarily generated by using debt rather financing of the firm by using high debt generate agency problems among shareholders and debt holders. For instance the study made by Gupta and etal (2011), conclude that the company which has high profitability and good performance has less amount of debt. Additionally, the results of the analysis made by shibru (2012) indicate that profitability has a negative relationship with leverage. Furthermore, the finding of the study made by kebede (2011), revile that profitability has an inverse relationship with leverage. The results of those studies imply that profitable firms use less debt in their capital structure.

The hypothesis of this study agrees with the most previous studies in stressing that there is a negative relationship between leverage ratios and profitability.

Hypothesis 3: There is an inverse association between capital structure and performance measured by gross profit margin (GPM) of commercial banks in Ethiopia.

1.4.4. Size

Several reasons are given in the literature concerning the effect of the firm size on the performance of firms. According to Smith as cited in Titman and Wessels (1988) the cost of issuing debt and equity securities is also related to firm's size, that is, large firms can raise capital at lower cost because of its goodwill and reputation in the market, while the inverse is true for the small size firms.

Rajan and Zingales (1995), made their study on firms in G-7 countries and they observed that the probability of default for large firms are less when compared with small firms due to the reason that large firms are more diversified. Large firms also have lower agency costs of debt, relatively lower monitoring costs because of less volatile cash flow and easy access to capital markets. In their finding they report that there is a direct link between the size of the firm and performance.

Empirical findings on this issue are still mixed for the relationship between size and performance of the bank. Pratomo and Ismail (2007) have shown a significant positive relationship between size and performance of the Islamic banks in Malaysia. The result of the findings made by Mumtaz (2013) and Abor (2005) Also suggest that as large size firm increase efficiency and affect the performance of the firm positively. In contradict with this the study made by Saeedi and Mahmoodi (2011) on the iranian companies indicate that the size of the firm has an inverse relationship with performance which is measured by ROA and Tobin's Q. in addition to this the study made by Khan (2012) on the engineering sector of Pakistan also indicate that the firm size and Tobin's Q have a negative relation. On the other hand Ahmad et al. (2012) made an investigation on the consumer and industrial sector of Malaysian firms and they found that the insignificant and negative relationship between size and ROE.

Since, several empirical studies have reported a significant positive relationship between performance and firm size, the researcher expected that a positive relationship between bank performance and firm's size which is measured by log of total asset.

Hypothesis 4: There is a direct relationship between the bank size and performance of the bank.

1.5. *Significance of the Study*

The findings of this study are important for the financial managers of banks in Ethiopia since this study examine the relationship between capital structure and performance of commercial banks in Ethiopia. The findings of the study enable the banks manager to be aware of potential positive or negative effect of capital structure on their performance. Such investigation also has an implication for policy makers in commercial banks particularly for National Bank of Ethiopia; they may use the findings of this research as input in developing regulatory standards considering the financial pattern of commercial banks and its impact on their performance. In related with this, the recommendation based on the findings of the study help the banks to undertake the appropriate measures in order to make their capital structure at optimal level.

This study also aware the investor about the relationship between capital structure and financial performance of the banks and it enable them to make an investment decision.

Furthermore, this research may be useful for academics interested in understanding the effect of capital structure on financial performance of commercial banks in Ethiopia and contribute a piece of knowledge to the literature on the relationship between capital structure and performance of the firm . In addition to the academic importance, after the accomplishment of the study the researcher made a ground for further study in the area of capital structure and also it serve as a reference for other researchers, who may interested to undertake further investigation on similar or related topics. Finally, the importance of undertaking the study in enhancing the research experience of the student is not be exaggerated.

1.6. *Scope and Limitation of the Study*

The study is highly contemplated on the broadest and most interesting branch of finance, capital structure decision, and the topic of the study is delimited to financial sector specifically examining the relationship between capital structure and performance of eight commercial banks in Ethiopia for the period 2000-2012.

Even if there are other variables used to measure the relationship between capital structure and performance of banks like stock market value and Tobin's Q but they are not considered in

this study due to resource restriction and absence of secondary market in the Ethiopian financial system. This study measure the relationship between capital structure and performance by apply ROA, ROE and NPM as dependent variables that is used to measure performance and capital structure is independent variables and measured by the leverage ratios of TATA and TDTC.

1.7. Organization of the paper

This research is organized in to five chapters. The first Chapter consists of background of the study followed by statement of the problem, then objective of the study and significance of the study are discussed and in the last section, Scope and Limitation of the Study are presented in their sequential order. The second chapter presents theoretical and empirical review on capital structure and performance of firm. The third Chapter provides a brief explanation about the methodologies will be use for the study. It consists of research design, methods of data collection, sample selection method, method of data analysis, model specification and definition of variable. The fourth chapter depicted the result and discussion part of the paper. The conclusion and recommendation base on the finding of the study was discussed in the last chapter.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

This chapter presents the literature concerning capital structure and performance of firm. The discussion on capital structure is made by utilizing the most prominent theories; starting from the Modigliani and Miller (1958) irrelevance theory of capital structure up to the different alternative theories; static trade off theory, pecking order theory and agency theory in order to provide the theoretical bases for this thesis. Following the theoretical literature, the review of empirical studies from the research of different countries by focusing on capital structure and performance of the firms are presented and in related with these, knowledge gap from the existing literature are outlined. Finally, the last section of the paper provides information about the regulatory environment of the banking system in Ethiopia.

2.1. Introduction

Capital structure has been defined by many researchers and scholar. Even though it is defined by many authors the definitions are explicit and have the same meaning. Accordingly Luper and Isaac.M (2012) defined capital structure as the method in which a company finance its activity through equity, debt or hybrid security and that a firm's capital structure is then the composition or structure in its liabilities. According to Pratheepkanth (2011) capital structure is a combination of various types of funds consists of long term source and equity shares which include reserve and surplus of the company. Therefore from the above definitions one can understand that capital structure is the alternative source of funds that could be used in the company to achieve the stated objective by maximizing the firm value and minimize cost of capital.

The objective of capital structure is maximization of firm value by minimizing the overall cost of capital. There are factors that firms consider before making capital structure decision. Leverage is one of the factors that affect the capital structure decision. A firm pays a fixed cost or fixed return such as debt, equity and preference share capital if it uses the fixed cost of financing. It is closely related to the overall cost of capital. When companies mobilize funds from long term finance such as equity and debt the organization required fixed cost of capital.

For this matter the company must take careful steps when deciding the capital structure of the firm to reduce cost of capital. Cost of capital has an inverse relationship with the value of the firm, when the company incurs high cost of capital it negatively affects the firm value and vice versa (Paramasivan and Subramanian, 2009).

A company capital is divided in to debt and equity which is affected by a lot of factor. One of the factors is nature of a business. The use of fixed interest/dividend bearing finance depends upon the nature of the business. The advantage of reducing cost of capital is acquired when the company applies equity than debt; if the business is long time operates business. Sizes of the company also affect the firm decision regarding the mix of debt equity ratio. If the firm size is large, the firm fulfill it is financial need by utilizing internal source of funds. While if the size of the firm is less they will jump further for external funds in order to utilize the financial requirement. It consists of high cost of capital. Legal requirements are also one of the considerations while dividing the capital structure of a firm. For example, banks are restricted to raise funds from some sources. Requirement of investors are also another factor. The company which issue different types of securities has a great chance to raise funds from different type of investors. The capital structure decision must also consider the rules and regulation set by the government regarding capital structure. It restricts to mobilize large, long term funds from external sources (Paramasivan and Subramanian, 2009).

2.2. Theoretical review

The main objective of business organization is shareholder wealth maximization. To achieve this objective, firms implement different financial and non financial decision. From the financial decision part, capital structure decision is the major part which affects the value of the firm and it leads to change earnings before interest and tax (EBIT) and market value of the shares. The three items; capital structure, cost of capital and the value of the firm go hand in hand in the company's capital structure decision. The aim of capital structure decision is to maximize the value of the firm and reduce the cost of capital. The literature shows the existence of different theories explain the relationship between capital structure and value of the firm.

After the work of Modgliani and Miller (1958) irrelevance theory of capital structure, the capital structure theory has been a study of interest for researchers and it become the ground for the development of other theory. Among the theories, the most prominent theories which explain the capital structure of the firms are static tradeoff theory, pecking ordered theory and agency theory. In this section the researcher tries to explain those theories one by one.

2.2.1. Modigliani and Miller (MM) theory

In the modern sense a theory of business finance starts with the Modigliani and Miller (1958) capital structure irrelevance proposition for the value of the firm. Before this theory, there was no generally accepted theory for the capital structure of the firm. Modigliani and Miller stated that, in perfect capital market the capital structure decisions of firm neither increase nor decrease the value of the firm in the market and also the average cost of capital does not change by the mix of debt equity ratio. As a result, the leverage of the firm has no effect on the market value of the firm. The important assumption they set in their theories include; there is a perfect capital market, there are no retained earnings, there are no corporate taxes, the investors act rationally, the dividend payout ratio is 100% and the business consists of the same level of business risk.

According to Luigi and Sorin (2009) there are two fundamentally different types of capital structure irrelevance propositions. The classic arbitrage-based irrelevance propositions provide settings in which arbitrage by investors keeps leverage does not affect the value of the firm. According to Miller and Modigliani (1961) as cited in Luigi and Sorin (2009) the second irrelevance proposition concludes that, the capital structure policies followed by the firm which consist of investment policy and the dividend payout policy does not affect the current price of it is shares and also the total return received by the shareholders of the firm. It means that in perfectly competitive market, the mix of debt equity ratio or the capital structure of the firm does not matter.

There are a lot of study made in order to disprove the irrelevance theorem of Modigliani and Miller. The assumption of Modigliani and Miller (1958) does not work under different of

circumstances. Luigi and Sorint(2009) state that, the most commonly used elements that make the assumption invalids are concern for tax, transaction and bankruptcy costs, agency conflicts, adverse selection, lack of distinction between financing and operations, opportunities received at different time, and investor clientele effects. In addition to this market imperfection, dividend policy and variety in risk are those condition that the theory is fails to work.

In 1963 Modigliani and Miller published another paper by considering the effect of tax shield on interest payment. They demonstrated that, the existence of corporate tax create a distinction between the value of levered firm and unlevered firm. The value of levered firm is greater than unlevered firm since interest is tax deductable item. Thus, using of debt in capital structure maximizes the firm value and they conclude that the company should take 100 percent debt to optimize company value and firm's value is positively related with capital structure.

However, in real world the firms prefer to employ moderate amount of debt due to the cost of bankruptcy. The possibility of bankruptcy has a negative effect on the value of the firm. Yet, bankruptcy is not the risk by itself that lowers value. Rather the costs associated with bankruptcy reduce the value of the firm. The costs are either directly related to bankruptcy or indirect costs. Legal and administrative costs associated with bankruptcy are direct costs whereas; the costs of avoiding a bankruptcy filing incurred by a financially distressed firm are called indirect bankruptcy costs (Ross et.al 2003). Indirect bankruptcy costs impaired ability to conduct business such as, lost of sales and Agency Costs i.e. Incentive to involve in riskier projects, motivation to pass good investment opportunities, Milking the asset of the company.

The optimal ratio of debt to equity is determined by taking increasing amounts of debt until the marginal gain from leverage is equal to the marginal expected loss from the bankruptcy costs. According to Myers (1984), a target debt-to-value ratio is determined by balancing debt tax shields against costs of bankruptcy.

According to Brigham and Ehrhardt (2008), in addition to high amount of legal and accounting expanses the bankrupted firms also face difficulty to retaining customers, suppliers

and employees. This means there is high turnover of the key employees, vendor are not not interested to grant credit, client need more stable supplier of goods and services and the lender required high interest rate and impose more preventive loan covenant if potential bankruptcy appear. Therefore, the firms may face difficulty to reimburse their debts if they over-borrow and become financially distressed. So, the cost of bankruptcy is not encouraging a firm to utilize debt to excessive level.

In general, according to the irrelevance theory of Modigliani and Miller (1958), the capital structure of the firm does not influence the performance of the firm in perfect capital market. However, in their seminal paper MM (1963), they demonstrate that with the existence of corporate tax the value of levered firm is greater than the value of unlevered firm.

2.2.2. Static trade of theory

According to Myers (1984) in the imperfect market the firms obtain their optimal capital structure at the trade off of the benefits and cost of the debt and equity financing. Until the value of the firm is maximized, a firm can make a substitution of debt for equity or equity for debt. A firm receives the tax shield benefit if it is a levered firm. If the firm relies too much on debt, it incurs financial distress cost. The large cost of financial distress probably leads to bankruptcy, where ownership of the firm's assets is legally transferred from the share holders to the bond holders. By comparing the tax benefit of debt and financial distress cost the firm determine it is capital structure. In addition to financial distress cost, agency costs are also consists with the use of debt and equity ratio. Agency costs arise due to conflict of interest among management, shareholders and debt holders. Consequently, the costs are incurred associated with monitoring management's actions to insure that these actions are consistent with contractual agreements among the management body, equity holders and debt holders.

Shibru (2012), state that firms are benefited if they absorb high debt than equity as a source of finance if they have more tangible asset and taxable income. While the firm depends on equity financing if the firm is dominated by intangible asset that the value disappears at the time of liquidation. In terms of profitability if the firm has more capacity to utilize debt and absorb tax shield on taxable income the firm is predicted as a profitable firm. So, the theory suggests that

until the financial distress cost become significant the firm would prefer debt over equity. Thus the tradeoff between debt equity ratios is illustrated in fig 2.1.

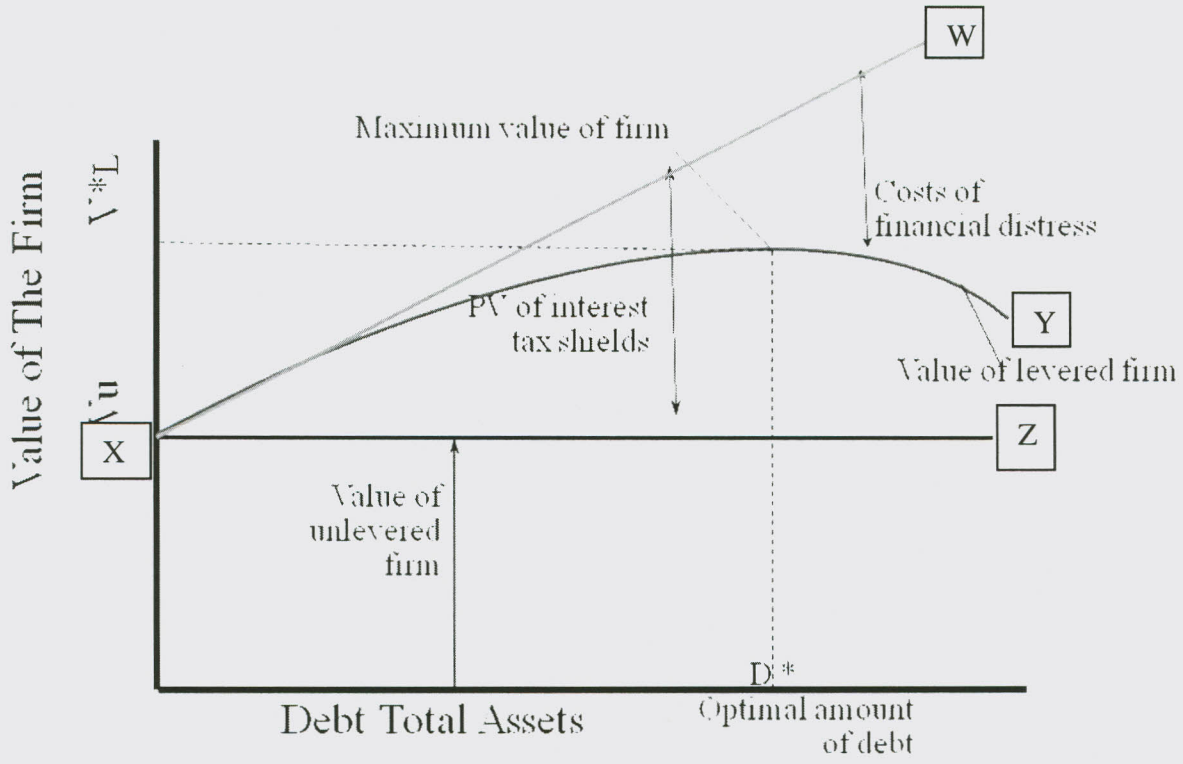

Fig 2.1; The optimal amount of debt and the value of the firm under Static trade of theory (Myers, 1984).

In figure 2.1 the straight line XZ shows that the irrelevance theory of Modigliani and Miller regime, under which the capital structure of the firm does not affect the value of the firm. If the firm is financed by having too much debt as shown in curve XY, the value of the firm first raises up to the maximum point (a point at which the value of the firm V*L reached at a debt level D* in fig 2.1) and then the value of the firm start to decline. So, this point is the point at which the firm borrowed at optimal level since Interest payments act as a tax shield and allow the firm to increase its value. According to this theory, the gain from tax shield on debt is offset by the financial distress costs unless; the firm balances the additional gain from leverage against financial distress cost in order to compose its capital structure at optimal level. As shown in the line XW, the costs of financial distress increase as the firm utilize more debt in its capital structure. Accordingly, Myers (1984) state that, the optimal capital structure

under the static trade off theory assumes that the firm should balance the tax advantage of borrowed money and the costs of financial distress when the firm borrowed too much.

In general, according to trade-off theory firms that are more profitable should borrow more in order to generate the tax shield benefit. Thus, the firm should operate with higher leverage by considering the cost of financial distress and agency cost. There are studies that provide empirical evidence supporting this hypostasis; that is, there is a positive relationship between debt level and firm's performance (Abor, 2005).

2.2.3. The pecking order theory

The other alternative theory that explain the firm debt position is the result of past investment and capital decision of the firm is pecking order theory which is described by Meyers (1984) and Myers and Majluf (1984). The pecking order theory declares that there is no well-defined target capital structure. This theory argues that, to minimize the problem of information asymmetry between the firm's managers-insiders and the outsider's shareholders firms may follow some financing hierarchy.

The pecking order theory as a distinct theory lies on the assumption of information asymmetry. In this assumption, managers possess information advantage over other stakeholders regarding the future prospect of the firm under their management (Myers and Mujluf 1984). When this assumption is unpacked for it is ultimate implications to capital structure, it follows that when manager possess favorable information there is no reason that managers would like to share with outside stakeholders the gain from the firm's future undertaking, as long as they can cheaply finance the firm's activities via internally generated fund.

According to Myers (1984), the pecking order theory determined the firm financing decision by hierarchy of preference. First firms prefer internal source of fund i.e. retained earnings. Since internally generated funds incur little issuing cost, managers have a preference for internally generated fund as a way of finance. Therefore, under packing order proposition internally generated funds would stand a top of other alternatives as the first preferred form of financing the firm's undertaking. Nonetheless, it may not be possible to entirely depend on

internally generated funds as is the case when internal funds fall short of the amount of finance required to undertake expensive and profitable projects. If the internal source of fund is not enough then the managers obligated to look for external source of funds. However, there is no single source of external finance.

Under packing order theory, the firm prefers to issue debt in first phase among alternative source of external finance. For one thing, as per the principle of financing "choose the safest path first", debt financing indeed is the safer of the other sources of external finance. Hence, debt financing is presumed to be the second best source of finance next to internally generated funds. In this way, the menu of financing source will be picked up in accordance with their rank on safety and cost of issue. Accordingly, the safest source of debt financing is followed by the hybrid securities such as convertible bond. Ultimately, in case debt financing is also inadequate to finance planned projects, then managers would have no choice but accept equity financing, and thereby incurring the high issue costs and dilution of ownership that come with equity financing (Myers 1984). As a final option, assets are financed by equity capital, but only if there is no other alternative. So, the firm will choose different sources of finance in such a way to minimize additional cost of asymmetric information. According to Myers and Majluf (1984), when the manager of the firm issue equity instead of debt, the stock price of the firm is discounted by the outside investor. Due to this it is important to keep away from equity financing in order to avoid this discount.

According to Frank and Goyal (2005), if the firm is on the track of Pecking order theory model, the financing decision is based on adverse selection of agency considerations, tax considerations or other factors. If the firm is profitable, has high amount of retained earnings, it is advisable to dominate the capital structure with equity.

In general, according to the packing order theory profitable firms those have high earnings to be retained are likely to use less external finance in their capital structure but not those have less retained earnings. This is because of profitable firms are able to finance their investment opportunities with retained earnings. That is a number of studies provide empirical evidence supporting negative relationship between debt level and firm's performance (Awunyo-vitor and Badu, 2011).

2.2.4. Agency Cost Theory

Agency theory suggested by Jensen and Meckling (1976), are the most prominent facts in the domain of research on agency costs. According to them, under the hypothesis of agency cost theory a high debt to asset ratio reduces the agency costs of outside equity and increase the value of the firm by restricting the manager to act for the interest of the shareholder. An agency relationship is an agreement between two parties. On the behalf of the principal the agent performs certain services. The problem of directing an agent to maximize the principal's welfare is rather common. Therefore, there is a possibility that the agent accomplish task for their own interest instead of maximize the benefit of the principal. This in turn affects the capital structure decision of a firm. The Jansen and Mecling (1976) model was developed initially with the identification of two types of interest conflict: conflict between managers and shareholders and conflict between debt holders and shareholders. They suggested that, the conflicts between shareholders and managers arise when a manager possesses less than 100% residual claims. Eventually, they do not capture the entire gain from their profit enhancement activities, but they do bear the entire risk of these activities. The other conflict, the conflict between debt holder and shareholder may arise when issuance of debt gives greater incentives to the shareholder.

According to Myers (1977) cited in Kebede (2011), the equity holder benefited from the investment if return is earned from the investment. The debt holder receives only fixed amount from the investment so, the equity holder benefited from the investment. Whereas, if the investment incurs loss, it has a negative impact on debt holder because the firm may face difficulty to settle the debt obligation and the liability of the corporation is limited to the amount of asset invested in the firm.

The principal has to control this problem by fixing an appropriate level of incentive for the agent and to monitor the agent's action by incurring monitoring costs. The principal incurs a specific cost, the "agency cost", which can be explained as the sum of the following activities: (1) the amount incurred by the principal as monitoring expenditure, (2) the amount incurred by the agent as bonding expenditures, and (3) the residual loss arising out of agency

relationship. The principal incurs monitoring costs to limit the unexpected activities of the agent (Jansen and Mecling, 1976).

The use of debt may mitigate the agency problem and serve as a mechanism to discipline the manager from engaging in self-serving activities. Therefore, the amount of free cash flow could be diverted by the manager is reduced by assuming more debt. According to Siddiqui and Shoaib 2010, in the free market economy reducing agency cost is one of the essential goals of the business organization by achieving optimal capital structure. According to them attaining to the optimal capital structure by reducing agency cost is one of performance measures tool for all business organization including banks.

Hence, unlike the MM (1958) irrelevance hypotheses, Jensen and Meckling (1976) conclude that there is an optimal level of capital structure that maximizes wealth when there are agency costs.

2.3. Optimum capital structure

Optimum capital structure defined as the capital structure or combination of debt equity ratio that maximize the firm value. It is the capital structure at which the value of the firm is maximizing by minimizes the weighted average cost of capital. There is no a single point determined for the company as optimal point. The optimal capital structure of firms varies from company to company. Capital structure pattern varies from company to company and depends on the availability of finance. The capital structure form which is popular in practice are; equity shares only, equity and preference shares only, equity and debentures only and equity shares, preference shares and debentures (Paramasivan and Subramanian,2009).

2.4. Capital structure and performance

The main objective of business organization is shareholder wealth maximization. To achieve this objective all Business organizations need funds. The funds are raised from different sources. Even if the firms raise funds from different sources, the major source of funds for all businesses organizations are equity and debt. The company may choose equity or owner's capital to finance their operation and eliminate risk from the earning of the company. If the

company does not earn profit in the fiscal period the owners and shareholders would not get dividends. Even though the owners and shareholders may not satisfy by this action, but they cannot usually sue. On the other hand some firms may choose debt financing as source of finance. In debt financing the company raise capital by borrow money from outside sources of financing. When the companies use debt as a source of financing it increase the financial risk of the borrower. Not only the borrower, debt financing put the lender also at risk even though they are compensated by the interest that they receive every year. The payment of interest depends on the performance of the borrower firm. High gearing is the name given when a business has a high proportion of outside money to inside money. Apart from other source of financing if the business venture is owned by your own, first you should look your own resource. Using of your own resource has advantageous than depending on debt. The benefits of using own resource is easier to arrange, cheaper, quicker and less time-consuming than any other source of money and to get a better response after some years of operation (Borrow, 2008).

Even though companies finance their activities by using different source of funds, the main aim of all companies is to increase the value of the firm in the industry. Increasing the value of the firm in the industry is one of the good indicators of performance. In fact measuring performance is controversial issue; especially in finance is not an easy task .this is due to the multidimensional measure of performance. According to Zeitun and Tian (2007), performance of the firms is measured by either financial or organizational variables. From the variables which are used to measure the financial performance of the firm profit maximization, maximizing profit on asset and maximizing shareholders benefits is the most important measure of firm's effectiveness whereas growth in sales and growth in market share are some of the variables used to measure the operational performance of the firm.

According to Zeitun and Tian (2007), Performance of the bank measured from different point of view from the perspective of different stakeholder in the bank. For instance depositor measured performance of the bank by seeing the bank ability to look after their savings, while the debt holder evaluate the performance of the bank by analyzing the ability to repay it is obligation. The way which is used to measure performance by equity holder to measure performance of the bank to ensure the future return on the current holding. Manger looks for

the profit generation ability, but it is subject to agency cost i.e. principal- agent consideration and also they consider the request raised by the employees of the banks.

2.5. Review of empirical studies

The reviews of other works in this section are done on the capital structure and performance of firms worldwide. After the seminal work of Modigliani and Miller (1958), there are bundles of study made on capital structure. In, this section the researcher tries to review the empirical studies made previously on the area of capital structure and performance of firms from the perspective of both developing and developed nations.

The study made by Zeitun and Tian (2007) is aimed at examining the effect of capital structure on corporate performance of companies in Jordan. The data for the study were collected from the financial statement of 167 Jordanian companies in Amman stock exchange (ASE) for the period 1989-2003. In the study they measure performance by using Tobin's Q, market value of equity to the book value of equity (MBVR), price per share to the earnings per share (P/E), and market value of equity and book value of liabilities divided by book value of equity (MBVE) as a market measure where as ROE, ROA and earnings before interest and tax plus depreciation to total asset (PROF) as accounting measures. The independent variables are measured by; leverage, growth, size, standard deviation of cash flow, tax and tangibility. Finally, they conclude that performance of the companies which is measure by accounting and market measures significantly and negatively affected by the capital structure of the firm in Jordan.

Siddiqui and Shoaib (2010), made a study to explore the agency cost hypothesis of the banking sector of Pakistan using a panel data of 22 banks for the period from 2002 to 2009. They use bank efficiency as dependent variable where as the independent variables are leverage ratio, earning, risk, size, bank investment and loans. Bank efficiency is measured by ROE and tobin's Q which are used as a proxy for measurement of profit efficiency and market value respectively. The findings of the study reveal that, the profitability of the bank significantly increases with the increment of leverage. When market power, earnings risk, and proportion of consumer loans increase the bank efficiency which is measured by profitability

also increase significantly. During the period of study the size of the bank also play a significant role to increase not only profit efficiency but also their market value. Lastly, the researchers suggest that to improve efficiency and quality of management of banks it is advisable to have separate ownership from the management control. In addition to this they also suggest that there is a need for a policy shift from consumer banking to pro-real sector loaning and instead of short term gains from leasing of cars and houses banks restructure their capital on the lines of long term investment trends.

The study made by Saeedi and Mohoodi (2011) is to examine the link age of financing choices and firm performance of Iranian firms in the Tehran stock exchange. they measure performance by using earning per share (EPS), return on asset (ROA) , return on equity (ROE) and Tobin's Q and leverage is measured by using the ratio of short term debt to total asset (STD) ,the ratio of long term debt to total asset (LTD), and total debt to total assets (TDT). Pooling panel data method is used to investigate the relationship between firm performance and leverage. In their study, they find that EPS and Tobin's Q has a positive relation with capital structure of the firm. ROE statistically has no relation with the firm performance and ROA and capital structure has a negative relation. The conclusion of their study is that firm performance has positive or negative association with capital structure.

The major objective of the study made by Pratheepkanth (2011) is to identify the impact of Capital Structure on financial Performance of the company in Sri Lanka. The data for the study were taken from the financial statements of business organization listed on Colombo Stock Exchange for the period of 2005-2009.In his study the researcher measure capital structure by debt equity ratio while the variables used as financial performance measurement are Gross profit, Net profit, return on investment and ROA. The analysis of the study shows that the relationship between capital structure and gross profit is a weak positive whereas there is a weak negative relationship between capital structure and net profit, return on investment and return on equity. From the analysis the researcher concludes that the relationship between capital structure and performance of the company in Sri Lanka is negative.

Khan (2012) made a study on the engineering sector of Pakistan listed on Karachi Stock Exchange (KSE) for the period 2003-2009 to see the relationship between capital structure decision and performance of the firm. The data is drawn from the financial statement of the companies. The study utilize ROA, ROE and GPM as accounting based measure and Tobin's Q to measure performance and STDTA, LTDTA and TDTA to measure the capital structure of the company. The finding of the study demonstrate that short term debt to total asset and total debt to total asset have negative and statistically significant relationship with ROA, GPM and Tobin's Q and long term debt to total asset have positive relation with performance measured by GPM. While, all variables used to measure leverage has weak effect on financial performance which is measured return on equity. The control variable, the size of the firm has insignificant relationship with performance measured by ROA and GPM whereas it has significant negative relationship with Tobin's Q. finally, from the findings the researcher made a conclusion that most of the firm in the engineering sector of Pakistan are levered and adopt the packing order hypothesis.

Abu-Rub (2012) investigates the effect of capital structure on firm performance by using the data that comes from the Palestinian stock exchange (PSE) for the period 2007-2010. The analysis for their study was conducted by using MLR regression analysis. In his study performance is dependent variable and measured by using accounting as well as marketing measure.ROA and ROE used as accounting measure, while Tobin's Q, EPS and market value of equity to book value of equity (MBVR) are used as market measure of performance. Capital structure is independent variable and analysis by short term debt to total asset (SDTA), long term debt to total asset (LDTA), total debt to total asset (TDTA), and total debt to total equity (TDTQ).

Abu-Rub(2012) conclude that palastine companies perform less in terms of accounting performance and better in terms of market performance when compared to neighboring counters. This conclusion is made from the findings that demonstrate performance measured by ROE has a very strong positive correlation with TDTQ and has not significant correlation with SDTA and LDTA. Performance measured by MBVR has no significant correlation with LDTA and TDTQ and significant with TDTA and SDTA. While the correlation of ROA, EPS

and Tobin's Q are not significant relation with SDTA, LDTA, and TDTQ and significant relation with TDTA.

The major objective of the study which is made by Gupta and etal (2011) is to investigate the impact of financial leverage on the performance of 100 firms in national stock exchange of India form the year 2006 to 2010. In their study, they demonstrate the relationship between the firm debt level and performance by using return on investment (ROI), return on equity (ROE), and return on stock (RET), earning before tax to sale ratio (EBTT/S) and operational profit to sale ratio (OPR/S). The result of the study shows that, the market value and adjusted value measures of capital structure have a strong link with performance when compared to book value. Finally, from the results they demonstrate that the financial performance of the firm is influenced by the capital structure. Lastly, the conclusion of the study is that the company which has high profitability and good performance has less amount of debt.

Adekunle and Sunday (2010), investigate the effect of capital structure on the financial performance of firm in Nigeria. The methodology adopted for the study is panel data methodology by having financial statements of 30 non financial firms listed on the Nigerian stock exchange (NSE). In their study the only independent or explanatory variable is capital structure that is measured by debt ratio variable and dependent variable is performance that is measured by ROA and ROE. The well known performance measurement Tobin's Q is not used in the study. In their result they revile that both ROA and ROE has a negative correlation with debt ratio. Thus, they wind up firm capital structure is an important determinant of firm's financial performance and the direction of the relationships is reversed.

Luper and Isaac (2012), made a study on manufacturing companies listed on the NSE of Nigeria for the period from 2005 to 2009 for determining the impact of capital structure on performance of the firm. In their study short term debt to total asset (STDTA), long term debt to total asset (LTDTA) and total debt to equity (TDE) are independent variables used to measure capital structure while return on asset (ROA) and profit margin (PM) are dependent variables used as performance indicator variables.

In their finding, except the positive relationship between return on asset (ROA) and total debt to equity (TDE) the general finding of their study indicate that a negative and insignificant relationship between other measures of capital structure and performance variables. From the finding they generalized that capital structure of is not the major determinant of performance of the firm. Finally they recommend that firm's would follow pecking order theory to determine their capital structure.

Ebaid (2009) conducted a study to examine the relationship between capital structure and firm performance of non financial companies listed on Egyptian stock exchange. To measure performance he used three accounting measures: ROA, ROE and gross profit margin (GM) and financial leverage is measured by short term debt to total asset (STD), long term debt to total assets (LTD) and total debt to total assets (TTD). The outcome of the study was that performance measured by ROE and GM has no significant relation with STD, LTD and TTD where as ROA has negative relation with LTD. Finally, he concludes as capital structure choice of Egyptian non financial firm has a weak to no effect on performance.

The study made by Abor (2005) evaluates the relationship between capital structure and profitability of firms listed on the Ghanaian Stock Exchange over a five-year period from 1998 to 2002. In his study the researcher use earnings before interest and taxes (EBIT) to equity as profitability measure variable and the variables used as leverage ratios are short-term debt to the total capital, long-term debt to total capital and total debt to total capital. The control variables used in the study is Firm size and sales growth. The outcome of the study indicate that short term debt to total capital and total debt to total capital has a significant positive relationship with profitability while long term debt to total capital has significantly negative association with profitability. Lastly, the researcher concludes that profitable firms depend highly on leverage as a source of finance.

Awunyo-vitor and Badu (2011) made a study to examine the relationship between capital structure and performance of banks listed on the Ghana stock exchange. They use both qualitative and quantitative approach and panel regression method is used to analysis qualitative data. In this study, performance is dependent variable and measured by ROA,

ROE, Tobin's Q and capital structure is independent variable and calculated by using debt to equity ratio.

The result of Awunyo-vitor and Badu (2011) show as capital structure has negative, negative but statistically insignificant and negative but statistically significant relationship between performance that is measured by ROE, ROA, Tobin's Q respectively .the conclusion of the study is that listed banks on the Ghana stock exchange are they are highly geared or over dependent on short term debt and this is negatively related to the banks performance.

The study made by kappur and gualu (2011) is to examine the impact of ownership structure on the performance of commercial banks in Ethiopia. To measure financial performance of the bank the researchers use analytical measures include profitability, asset quality, efficiency and liquidity and capital management measures. The data for the study is drawn from eight commercial banks, out of it two are state owned and the remaining six are private banks for the period from 2001 to 2008.

The researchers use return on assets, net interest margin, Return on equity and Non Interest Income Margin as profitability measures; Noninterest expenses to average assets, General expenses to assets and Staff expenses to assets, Overhead and Cost to income as efficiency measure; Provisions to non performing loan, Provisions to loans and Provisions to assets and Nonperforming loans as asset quality measure; Loans to deposits, Liquid assets to assets and Liquid assets to deposits as a measurement of liquidity and the capital adequacy of the banks is measured by Capital to loans, Capital to assets, Capital to net loans and Capital to deposits. The findings of the study reveal that in terms of the quality of asset, the profitability of banks and capital adequacy measures private commercial banks perform better financial performance the public banks while in terms of cost management with respect to cost to assets ratio categories public commercial banks perform better from their counterparties private banks. On the other hand in of terms liquidity measures there is no significant difference between private and public commercial banks in Ethiopia.

The main objective of the study made by Yaregal (2011) is to examine the effect of ownership on the bank performance of banks in Ethiopia. The data's are derived from the financial

statement of two states and six private banks for the year 2005 to 2010.the study use private and state owned banks as variable to measure ownership and profitability, solvency and risk, liquidity and efficiency are variable used to measure performance.

The finding of the study reveal that the profitability measures the ratio of return on equity and profitability measure of state banks are more profitable than private banks whereas in terms of return on asset private banks are more profitable. The liquidity measures liquid asset to deposit ratio and loan to asset ratio support that state banks are liquid than private banks and in terms of loan to deposit ratio private banks are more liquid. Debt equity ratio and equity multiplier the ratio to measure solvency indicate that private banks are more solvent and less risky than state owned banks. From the ratio to measure efficiency the income ratio operating efficiency of state banks are greater than private banks. Private Banks perform better in asset utilization ratio of efficiency measure. Finally the growth of private banks is much faster than state owned banks. Generally, in terms of profitability, liquidity and efficiency state owned banks and in terms of solvency and growth pattern private banks perform better. From the above findings he concludes that ownership has limited impact on performance of banks in Ethiopia.

The study made by Kebede (2011), is to investigate the determinants of capital structure in Ethiopia small scale manufacturing co operatives .the research method which employed in the study is quantitative approach method specifically survey method. The data is collected from the financial statement of 13 small scale manufacturing co-operatives for the period from 1998 to 2002 E.C. the researcher also made unstructured interview method to collect data from concerned bodies. In the study the researcher used leverage as dependent variable whereas size, tangibility, profitability, earning volatility, growth and age are used as independent variables. The finding of the study revile that size and tangibility has positive relationship with leverage while; profitability, earning volatility, growth and age has an inverse relationship with leverage. Finally, the researcher conclude that even though the three most dominant capital structure theories are appear in Ethiopian small scale manufacturing cooperatives, the best theory that explain the capital structure theory of the sector is trade off theory.

The main objective of the study made by Shibru (2012) is to examine the relationship between leverage and determinants of capital structure decision and to explore which capital structure theory is applicable in commercial banks in Ethiopia. He uses profitability, tangibility, growth, risk, size and liquidity as a factor that determine the mix of debt equity ratio. The researcher use mixed research methods by combining qualitative and quantitative approach together to achieve the stated objective. The data source for the study is documentary analysis and depth interviews. The study uses eight banks data for twelve consecutive years (2000-2011).

The results of the analysis indicate that profitability, tangibility, liquidity and growth have negative relationship with leverage. Size and leverage has a positive relationship. There is no support to identify the level of leverage is affected by risk. The conclusion of the study made by Shibru (2012) is that profitability, liquidity, tangibility and bank size are the major factor to determine capital structure of commercial banks in Ethiopia and the predominant capital structure theory applied in Ethiopian banking industry is pecking order theory.

In general, the most prominent capital structure theories which are developed in the world following the seminal work of Modigliani and Miller (1958) are the trade off theory, pecking order theory and agency theory. The study made by various author support different alternative capital structure theory. Accordingly the literature made by Shyam-Sunder and Myers (1999), on capital structure to test static trade of theories against pecking order models, pecking order model explains much more of the time-series variance in actual debt ratios than a target adjustment model based on the static trade of theory. According to Siddiqui and Shoaib (2010), the agency cost of the financial institution is determined by the capital structure of the financial sector in the economy. By reducing agency cost banks might attend at optimal level.

The study made by Byoun and Rhim (2003), investigate the implications of the tradeoff theory and the pecking order theory. The finding of the study reveals that an important determinant of change in debt level is that the difference between the target debt ratio and actual debt ratio. The results also provide pecking order is found to be a much more binding force for small firms and weak evidence that non-dividend-paying firms are more concerned

about the pecking order than dividend paying firms. From their finding, they conclude that firm's capital structure decisions can be better explained by taking the two theories as complementary rather than exclusive ones.

The relationship between capital structure and performance of the firm are examined by a lot of authors around the World by using different capital structure and performance measurement variables. Most of the study including Awunyo-vitor and Badu (2012), Saeedi and Mohoodi (2011), Abu.rub (2012), Adekunle and Sunday (2010) uses the ratio of short term debt to total asset (STD), the ratio of long term debt to total asset (LTD), total debt to total assets (TDA) and total debt to total equity (TDTQ)as capital structure variable and earnings per share (EPS), return on asset (ROA) and return on equity (ROE), Tobin's Q, gross profit margin (GM) and market value of equity to book value of equity (MBVR) are a variable used to measure performance.

Empirical studies made by different researcher provide different result on the relationship between capital structure and performance of firms. Among these Saeedi and Mohoodi (2011) reveal that firm performance has positive or negative association with capital structure. Adekunle and Sunday (2010) disclose firm capital structure is an important determinant of firm's financial performance and the direction of the relationships is reversed. Ebaid (2009) conclude that capital structure of a firm has a weak to no effect on performance. Awunyo-vitor and Badu (2012) state that capital structure has negative, negative but statistically insignificant and negative but statistically significant relation-ship with performances.

In summary, the empirical review of the literature shows that, there is no universally acceptable theory of capital structure. Also, there is no optimal point for the choice of debt-equity ratio due to the inconsistency of the result on the relationship between capital structure and performance of the firm. By having the discrepancy, this study is conducted in the Ethiopian banking industry to examine the relationship between capital structure and Performance of commercial banks by using selected capital structure and performance measure variables.

2.6. The Regulatory environment of Banking System in Ethiopia

The introduction of modern banking in Ethiopia was marked by the establishment of Abyssinian bank in 1906. Until bank of Abyssinian was nationalized in 1930, the financial sector was dominated by foreign ownership (Mauri, 2003). Proclamation No. 84/1994 that allowed the private sector to engage in the banking businesses marked the beginning of a new era in Ethiopian financial sector. The pioneer bank that is operated in the country is Awash International Bank that was established in 1994.

Ethiopian commercial banks operate under a host of regulatory bounds administered by the National Bank of Ethiopia. The minimum paid-up capital amount required to establish new bank has risen from 75 million Birr to 500 million Birr effective Monday, September 19, 2011. The 500 million Birr paid-up capital shall be fully paid in cash and deposited in the National Bank of Ethiopia in the name and to the account of the bank under formation. Related to this, NBE requires that commercial banks in Ethiopia to be owned only by citizens of the country. Which means the regulation allowed No foreign ownership of banks http://addisfortune.com.

As per Directive No.SBB/9/95, NBE, Ethiopian Commercial banks are required to maintain adequate capital proportionate to their risk exposure. Capital adequacy requirements are rationalized as a means of ensuring financial solvency of banks. The minimum capital requirement for commercial banks operating in Ethiopia is set at 8 % of risk weighted assets. The national bank of Ethiopia imposes liquidity requirements on Ethiopian commercial banks to meet the need of customer on day-to-day cash deposit withdrawal from commercial banks. any licensed bank shall maintain liquid assets of not less than 15% of its total demand deposit, saving deposit and time deposits and similar liabilities with less than one month maturity period as to the NBE's No. SBB/5/95 Moreover, banks need to submit their weekly liquidity position to the Directive of NBE. These are NBE's legal bases to ensure the quality of assets held by banks (Geda, 2006).

As per the directive of National Bank of Ethiopia all commercial banks are required to transfer 25%of its profits to its legal reserve account annually until the reserve amount equals

the bank's capital. The annual transfer of profits will equal 10 % of profits of the bank at a time when the reserve equals the bank's capital (Directive No SBB/4/95).

CHAPTER THREE

3. METHODOLOGY

This chapter describes the research procedure that is followed to carry out this study. It consists of five sections. The first section is research design followed by the section two which is type of data. In the third Section, sample selection methods are presented. The subsequent section presents and discusses method of data analysis. Finally, section five is model specification.

3.1. Research Design

A research design is a master plan specifying the methods and procedures for collecting and analyzing the data. The choice of research design depends on the general and specific objective that the researcher wants to achieve. There are two distinct logical reasoning important to the scientific research, deductive reasoning and inductive reasoning. In deductive reasoning one starts from some general laws or principles and applies it to a particular instance, from the general to the particular. Under deductive research, the researcher explains the linkage of the theory with the variables used in the study and change the theory into the researchable entities. Quantitative researchers primarily follow a deductive route. On the other hand, in induction one start from observed data and develops a generalization which explains the relationship between the objects observed, from facts to theories. Qualitative researchers primarily follow inductive route (Kotari, 2004).

According to Gansuwan and onel (2012), in deductive reasoning; first the researcher collect data, after that develop testable hypothesis and subsequently based on the theoretical consideration the hypothesis are tested with the empirical findings, afterward decide to reject or not to reject based on the result of the test. Finally, the findings of the study are discussed by supporting with the theory. Thus, in deductive reasoning, generalization is made not only by depending on the collected data, but also from the theory and empirical finding. On the other hand, in induction one start from observed data and develops a generalization which explains the relationship between the objects observed, from facts to theories. On the other hand, in induction reasoning theory conclusion are formed from the findings of the study.

In order to achive the specific and general objectives of the study, the study employ both quantitative and qualitative methods approach. In quanititative part testable hypothesis are developed in light with the previous work then, the investigator generate the model to examine the relationship among variable to test the objectivity of the theory. Also, the data are analysed and hypothesis are tested. There is also a test of hypothesis derived from the existing theory and empirical studies. In addition to quanititative method, qualitative method is appled to see the result of the regression analysis with perspective of the emperical litrature on the theory of capital structure.

3.2. Method of Data collection

This study on capital structure and performance of commercial banks in Ethiopia totally relies on secondary data; which include published and unpublished documents. In order to avoid the risk of distortion in the quality of the data, audited annual financial statement used in the study which is obtained from the head office of each sample banks and the National bank of Ethiopia, which regulates the banking sector of the country. The data collected from the indicated sources are easily accessed and collected without any payment.

3.3. Sample selection method

The population of the study is all commercial banks in Ethiopia operated by having the objective of earning profit. The researcher use purposive sampling to select a sample from the total population. Purposive sampling is the only option that is used in the study when the study population is rare or very difficult to locate and recruit for the study (Mekasha, 2011).

As everyone can understand from the general objective of the study, the researcher want to examine the relationship between capital structure and Performance of commercial banks in Ethiopia. In order to achieve this objective, the study population or commercial banks in Ethiopia are classified based on years of operation. So, the researcher classifies all banks in to two, those banks operated before the last thirteen years and within last thirteen years. This study uses those banks that are operated for more than thirteen years and the selected banks are established for giving commercial bank services only.

Therefore, the researcher uses 13 years data from 2000-2012 selected commercial banks that provide financial statements for consecutive thirteen years. This is because the primary aim of the study is to examine the relationship between capital structure and performance of commercial banks in Ethiopia by using reliable data from national bank of Ethiopia. It is possible to make generalization from a sample to population for the banking sector of the country from the data that is drawn from the bank which is experienced in the industry. Further, Performance is not a one night process rather, it comes by making operation for some consecutive years and most of the study including the study made by sauna (2010), used thirteen years data to see the relationship between capital structure and performance of the banking industry in US for the period from 1995-2007. By having the above fact, this study was conducted only by using thirteen years data from those banks stated in the next paragraph.

The data's were collected from eight different commercial banks in the country. out of the eight commercial banks, two banks; Commercial Bank of Ethiopia (CBE) and Construction and business bank (CBB) are state owned banks and the remaining six banks; Awash international bank (AIB), Dashen bank (DB), Nib International Bank (NIB), Wegagen Bank (WB), United Bank (UB) and Bank of Abyssinia (BOA) are private banks. The study is not going beyond the specified sample size because the precision and the validity of the work are not guaranteed by increasing the sample size beyond specified. Eshetie (2011), state that increasing the number of sample size more than the specified is not add value to the study rather it is duplication of information and leads unmanageable. Also, since this study is conducted in similar industry, the precision and the validity of the work are not reducing by the specified number of the sample size. So, the sample sizes of this study are eight commercial banks in Ethiopia for thirteen years from 2000 to 2012.

3.4. Method of data analysis

This study utilize both descriptive and econometric analysis by using STATA version 11 package based on a time series data from 2000 to 2012 to examine the relationship between capital structure and performance of eight commercial banks in Ethiopia. The data that is collected from different sources are coded, checked and entered to excel program. Then the

collected data are processed and analyzed by using STATA version 11 software. In the descriptive analysis dataset the data are analyzed through tables and percentage. The results of the analysis of descriptive statistics such as mean and standard deviation where reported so as to give information about the variables under investigation. Also, in order to examine the possible degree of Multicollinearity among the regresses, correlation matrixes of the variables of the study were calculated. The correlation statistics are helpful to gain initial insight regarding the relationship between the variables used in the study. Beside, various diagnostic tests are made to decide whether the model used in the study is appropriate and fulfill the assumption of classical linear regression model. Finally, the study used Fixed Effect and random effect Multivariate Panel Data Regression Model to determine the relationship of capital structure with performance of the bank for each variable specified for this study and to test the stated theory. The regression results were presented in a tabular form with the appropriate test statistics. Then, a thorough explanation of each parameter where given in line with the capital structure theory.

3.5. Model specification

The aim of this study is to examine the relationship between capital structure and performance of commercial banks in Ethiopia. like the most prominent previous research works that is made on capital structure and performance the study uses capital structure as independent variable which is measured by the ratio of total debt to total asset (TDTA) and the ratio of total debt to total capital (TDTC) where as performance is an dependent variable and measured by return on asset (ROA), return on equity (ROE), and net profit margin (NPM).

The variables were chosen because they are widely accepted accounting-based and financial measures of performance. One of the major goals of business organization is maximize the wealth of current shareholder. Financial ratios are the major basis's to determine this goal. So, the commonly used ratios to measure firm performance are financial ratios. Size is the control variable and it is included in the study to control the effect of size on performance.

Accordingly, this paper is examining the relationship between capital structure and performance of commercial banks of Ethiopia by adopting a model that is existed in most

literature. The regression model which is existed in most literature has the following general form;

$$Y_{it} = \beta + \alpha X_{it} + \varepsilon_{it}$$

Where Y_{it} is the dependent variable for firm i in year t, β is the constant term, α is the vector of coefficient of the independent variables of interest that the study want to estimate , X_{it} is the vector of the independent variable for firm i in year t and ε it the normal error term.

This study is based on the conceptual model adapted from Ebaid (2009) and Khan (2012). The estimated models to be used in this study are modified and presented as follow;

$$ROA_{i,t} = \beta_0 + \beta_1 TDTA_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

$$ROA_{i,t} = \beta_0 + \beta_1 TDTC_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

$$ROE_{i,t} = \beta_0 + \beta_1 TDTA_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

$$ROE_{i,t} = \beta_0 + \beta_1 TDTC_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

$$NPM_{i,t} = \beta_0 + \beta_1 TDTA_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

$$NPM_{i,t} = \beta_0 + \beta_1 TDTC_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

Where:-

$ROA_{i,t}$ = Return on asset assets for firm i in year t.

$ROE_{i,t}$ = Return on equity for firm i in year t.

$NPM_{i,t}$ = Net profit margin for firm i in year t.

$TDTA_{i,t}$ = Total debt to total assets for firm i in year t.

$TDTC_{i,t}$ = Total debt to total capital for firm i in year t.

$\log S_{i,t}$ = logarithm of total assets for firm i in year t.

β_1 and β_2 = The coefficients of the explanatory and controllable variables, respectively.

$\varepsilon_{i,t}$ = the error term.

Note; the mean of the error term is zero, has constant variance and they are uncorrelated. The co-efficient of the independent and controllable variables (b_1 and b_2) can be estimated by the use of OLS technique.

3.6. Definition of variable

This study used leverage ratio as independent variable which is measured by the ratio of total debt to total asset (TDTA) and total debt to total capital (TDTC) and financial performance as dependent variable which is measured by return on asset (ROA), return on equity (ROE), and net profit margin (NPM).

According to Brooks (2008), even though the model which is used in the study has more than one explanatory variable[1], some of the determinant variables might be missed from the model. Consequently, to capture the effect of the omitted variables it's essential to include the disturbance term[2]. Therefore, the researcher believes that, the influence of the omitted variables which may have an effect on the capital structure of banks is minimized by including the disturbance term.

3.6.1. Independent variable

Most of the empirical literature shows that, financial leverage of a firm is measured by debt ratio which is measured by total debt to total asset (TDTA) and total debt to total capital (TDTC). This study uses two most prominent measures of capital structure that is used in most literature. Form those researchers, Khan (2012), Saeedi and Mohoodi (2011) and Abu-Rub (2012) are some of the researchers who use these variables to measure the capital structure of the company. Also this study utilize this two ratio to measure leverage due to the difficulty to split the total debt of the banks as short and long term debt.

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[1] *Explanatory variables; the independent variables*

[2] *Disturbance term; error term*

Total debt to total asset (TDTA) is one of the explanatory variables used in the study. It is computed by the ratio of total liabilities of the bank to total asset. The ratio is used to determine the extent that commercial banks in Ethiopia are depending on debt to finance their activities. In this study TDTA is calculated by dividing total debt by total asset.

$$TDTA = \frac{Total\ debt}{Total\ asset}$$

Total debt to capital (TDTC) is the other explanatory variable which is used to measure the financial leverage of the banks. It is computed by dividing total debt by total capital of the banks. The ratio is important to compare the total debt of the banks with it total capital. If the total debt to capital ratio is high, the largest proportion of the bank's capital is comprised of debt.

$$TDTC = \frac{Total\ debt}{Total\ capital\ and\ reserve}$$

3.6.2. Dependent variable

This study uses three financial performance measurement variables to examine the relationship between capital structure and performance of banks. Financial performance could be defined as evaluation of the company activities, operation, policies and procedure in monetary term. Performance of a firm is measured by different performance measurement variables. To assess performance, some researchers used accounting based measurement. Profitability ratios which include returns on asset, returns on equity and net profitability margins are accounting based variables used to measure performance of a firm. Abor (2005) and Ebaid (2009) are some of the researchers utilize those variables to measure performance of a firm. While some other author assess performance by using market based measurement. Welch (2004) as cited in Ghafoor (2012) measure performance by using the stock returns and volatility in returns. Siddiqui and Shoaib (2010) and Abu-Rub (2012) used Tobin's Q as performance measurement variable which uses the combination of both accounting and market values.

In this study, accounting based variables are uses to measure the financial performance of commercial banks in Ethiopia. The profitability ratios which are ROA, ROE and NPM are a good parameter to measure the financial performance of commercial banks of Ethiopia. According to zeitun and tian (2007) the market measures will not provide a good result in the country stock market is not highly developed and active. In Addition to this, the data for the study is drawn from the financial statement of the banks which disclose information about the accounting based variable which is important to measure the operating performance and the net worth of the banks. Therefore, this study measure performance by using three accounting based variables including ROA, ROE and PM.

Return on asset (ROA) is the most commonly used measure of the financial performance of the firm. It is calculated by dividing the net income of the bank by the amount of its assets. It is a useful measure of how well a bank manager is doing on the job because it reflects the bank management ability to generate profits by using the available financial and real assets. Several previous studies including Ebaid (2009), Adekunle and Sunday (2010), Saeedi and Mohoodi (2011) and Abu-Rub (2012) used similar measures of ROA to measure the financial performance of the firms. ROA is computed by;

$$ROA = \frac{Net\ income}{Total\ asset}$$

Return on equity (ROE) is used as a measure the financial performance of the banks in terms of profitability and it concerned about how much the bank is earning on their equity investment. It is calculated as the net income divided by Shareholders' Equity. Several previous studies including Siddiqui and Shoaib (2010), Gupta and etal (2011) and Awunyo-vitor and Badu (2011) are used similar measures of ROE to measure the financial performance of the firms.ROE is computed by;

$$ROE = \frac{Net\ income}{capital\ and\ reserve}$$

Net profit margin (NPM) is the other dependent variable used in this study. Several previous studies Ebaid (2009) is used similar measures of gross profit to measure the financial performance of the firms.

$$NPM = \frac{Net\ income}{Interest\ income\ +\ Noninterest\ income}$$

3.6.3. Control variable

Due to an existence of economies of scale in the businesses operation, the firm's size may affect their profitability. To measure the firm's size, two formulas were used by different researchers, that is, either natural logarithm of sale or natural logarithm of assets. According to Titman and Wessels (1988) and Abor (2005) the firm's size can be measured by the natural log of sales. However, several previous studies including Siddiqui and Shoaib (2010), Adekunle and Sunday (2010) and Awunyo-vitor and Badu (2011) were used natural logarithm of total assets to measure firm's size.

The empirical studies show that, the importance of firm size in influencing the performance. In this study the control variable is firm size which is measured by the Natural logarithm of total assets of the bank. Total assets appear to be a good proxy for firm size, since a great variation in banks occurred in the amount of their asset. According to Gatsi and Akoto (2012), the use of natural logarithm has a capacity to standardize values to get the real total assets of the banks thus bringing them on the same platform for a more efficient analysis to be done.

The variables used to examine the relationship between capital structure and financial performance of commercial banks in Ethiopia is summarized in table 3.1 below.

Table 3.1; Computation of Variables used in the study.

	Variables	Ratios
Financial performance	*ROA*	$ROA = \frac{Net\ income}{Total\ asset}$
	ROE	$ROE = \frac{Net\ income}{capital\ and\ reserve}$
	NPM	$NPM = \frac{Net\ income}{Interest\ income\ +\ Noninterest\ income}$
Capital structure	*TDTA*	$TDTA = \frac{Total\ debt}{Total\ asset}$
	TDTC	$TDTC = \frac{Total\ debt}{Total\ capital\ and\ reserve}$

3.7. Conceptual framework

The major objective of the study is to examine the relationship between capital structure and performance of commercial banks in Ethiopia. Based on the main objective of the study, the following conceptual model is contracted in the study.

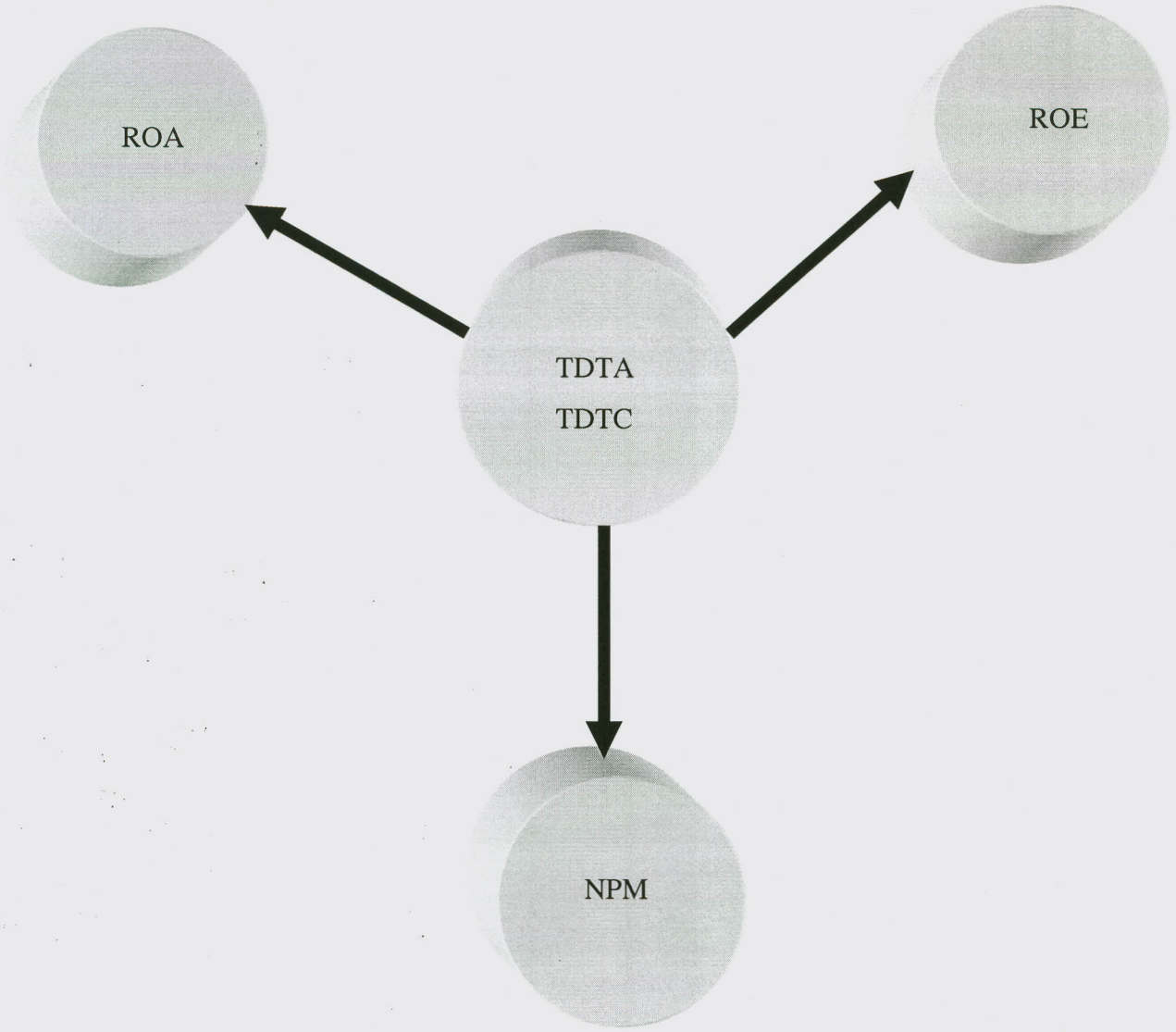

Fig 3.1; Conceptual framework of the study.

Fig 3.1 above showed that the conceptual framework designed by the researcher to demonstrate the effect of capital structure on the financial performance of commercial banks in Ethiopia. In this diagram the independent variables are TDTA and TDTC while ROA, ROE and NPM are the dependent variables. The purpose of this diagram is to examine the effect of independent variables; TDTA and TDTC on the financial performance of the commercial banks which is measured by ROA, ROE and NPM.

CHAPTER FOUR

4. DATA ANALYSIS AND PRESENTATION

This chapter deals with the analysis and presentation of the results and testing the research hypothesis in order to set the bases for the conclusion of the study. The data are analyzed by using one of the econometric package STATA version 11 software. The descriptive statistics and correlation analysis are discussed before the presented of the diagnostic tests in order to fulfill the assumption of classical liner regression model. Next to this, econometric analysis and a discussion of the main finding of the study were presented by using tables. In the penultimate section, the results of the regression analysis were discussed by supporting empirical evidences.

4.1. Introduction

The relationship between capital structure and performance of the firm has been investigated by various researchers across the world among different industries. However, the literature is short of empirical evidence from financial institution. The fact that financial institution are naturally highly leverage organization and the significant role they made for the economy, it is important to look at their performance in relation with their capital structure decision. Specifically, in the Ethiopian financial system banks have a major role for the economy. This study is made in order to examine the relationship between capital structure and performance of commercial banks in Ethiopia to contribute its own effort to the empirical work on the relationship between capital structure and performance of firms. The banks that are included in the study are those banks that operate for greater than thirteen year. The data for this study were drawn from eight banks for the period from 2000 to 2012. Therefore, total 104 observations were analyzed in order to examine the relationship between capital structure and performance of commercial banks in Ethiopia.

4.2. Variables used in the study

This study is conducted by using variables drawn from the financial statement of the bank. As stated in the previous chapters, the dependent variables are return on asset, return on equity and net profit margin while the independent variables are total debt to total asset and total debt

to capital. Size also used as control variable in this study. Even though, the study computes dependent and independent variables by exploit different variables from the financial statement of the bank, the explanation of those variable used in the study is presented in table 4.1 below.

Table 4.1; the explanations of Variables used in the study

Variables	***Explanation***
Return on asset (ROA)	*Was calculated as net income divided by total asset.*
Return on equity (ROE)	*Was calculated as net income divided by capital and reserve.*
Net profit margin (NPM)	*Was calculated as net income divided by the sum of interest and non interest income.*
Total debt to total asset (TDTA)	*Was calculated as total debt of the bank divided by total asset.*
Total debt to total capital (TDTC)	*Was calculated as total debt of the bank divided by capital and reserve.*
Size	*Logarithm of total asset.*

***Source**: computed from the financial statement of commercial banks in Ethiopia*

4.3. Descriptive statistics

This section presents the descriptive statistics of dependent and independent variables used in the study for the sample banks. The dependent variables used in the study are ROA, ROE and NPM while the independent variables are TDTA and TDTC. To test the effect of size on the performance of commercial banks in Ethiopia, logarithm of total asset were taken. The descriptive statistics for the variables computed from the financial statements were summarized in table 4.2 below. The total observation for each dependent and explanatory variable was 104. The table demonstrates the mean, standard deviation, minimum, median and maximum values for the dependent and independent variables for sample banks from 2000 to 2012.

The Return on asset measured by the net income of the bank divided by total asset has a mean of 2.30 and median 2.50 percent. These indicate that the sample banks on average earned a

net profit of 2.3 percent of total asset. The ROA indicate that how the bank manager utilize the available financial and real assets to generate profits by utilizing the available assets of the bank. Thus, if the ratio of ROA is high, it indicates that it is better performance in order to generate profit. Even though, there is no standardize measures for ROA, when it is compared the empirical evidence of neighbor market, made by Awunyo-Vitor and Badu (2012) for Ghanaian banks which get the mean value for ROA of 4.38 and reviled poor performance of banks in Ghana, commercial banks in Ethiopia had also low performance with regard to ROA in the study period.

On the other hand, ROE measures how much the bank is earning on their equity investment. Return on equity measured by the net income of the bank divided by capital and reserve. The amount of mean and median of return rate which is measured by ROE for commercial banks in Ethiopia has the value of 21.76 percent and 21.17 percent respectively, which means that the sample banks on average earned a net profit of 22 percent of total equity. The Net profit margin measured by dividing the net income of the bank by the sum of interest and non interest income has a mean value of 28.46 percent and median of 32.29 percent. This shows that, for the sample period the banks earned on average 29 percent from interest and non interest income. The above results indicate that that during the study period the sample banks have relatively good performance which is measured by ROE and NPM when it compare with ROA. In general the descriptive analyses of performance measurement variables have report different mean values. This has an indication that performance of the bank varies with respect to the variables used to measure performance.

The total debt to capital ratio reveals that the amount of debt and equity that the banks used to finance it is asset. The mean and median of total debt to capital is that 9 percent and 8.03 respectively. This indicates that commercial banks were financed with debt at approximately 9 times greater than equity. This is occurred as a result of the difficulty to finance their activities by using equity fund in developing countries. This is due to the stock market of developing countries are not efficient as well as liquid as of developed countries. The ratio of Total debt to asset is used to determine the amount of leverage being used by commercial banks in Ethiopia to finance their activities. If the ratio is high it indicates that the banks are highly levered institution where as if it is low percentage represents the opposite. The mean and

median of TDTA ratio for the sample banks is 88.32 percent and 88.92 percent respectively. These indicate that, the amount of debt for the sample commercial banks were 88% of the capital of the bank. Thus, the capital structure of commercial banks in Ethiopia is dominated by debt or this sector operates with significant level of financial leverage. This is due to the financial market of the country is neither well developed nor diversified consequently; most of the funds are come from the deposit of customer which has an effect to increase the liability of the banks. Leverage ratio for the sample banks was ranged from 71 percent to 96 percent with standard deviation of 5 percent. In general when compared with performance measure variables, the ratio used to measure leverage has high amount of mean value.

The size of the bank which is measured by the natural logarithm of total asset for the sample period has the mean value of 9.5and median of 9.50. This indicates that, the average size of the bank in Ethiopia which is measured by logarithm of total asset is ranged from 8.20 minimum values and 11.20 maximum values with standard deviation of 0.60.

Table 4.2; Summery of descriptive statistics

Variable	*Observation*	*Mean*	*Standard Deviation*	*Minimum*	*Median*	*Max*
ROA	104	.0228798	.0099869	.0008842	.0249622	.0402093
ROE	104	.2176538	.118602	.0141844	.21171	.7035215
NPM	104	.2846488	.1164662	.0141685	.3229915	.4992204
TDTA	104	.8832151	.0480568	.7056075	.8892919	.9625666
TDTC	104	8.997961	4.237166	2.396825	8.033103	25.71411
SIZE	104	9.516684	.6091432	8.155336	9.485186	11.20086

Note: *ROA refers to return on asset, ROE for return on equity, NPM for net profit margin, TDTA for total debt to asset and TDTC for total debt to capital.*

Source*: computed from the financial statement of commercial banks in Ethiopia*

4.4. Correlation analysis

In the descriptive statistics part the study shows; the average value, their relative variations, minimum and maximum values of the dependent, independent and control variables of

commercial banks for sample period. In this section, correlation analysis is made to see the relationship between dependent variable and independent variables as well among independent variables. As stated in Gujarati (2004), the correlation analysis is made to describe the strength of relationship or degree of linear association between two variables. In the next part, under the Pearson correlation coefficient matrix section, the correlation analysis which is made to examine the relationship between capital structure and performance measurement variables is discussed.

Pearson correlation coefficient matrix

The correlation analysis table indicates that, the likely relationship among variables used in the study. The values of the correlation coefficient are always range between -1 and +1. A correlation coefficient of +1 indicates that, the two variables are perfectly related 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 relationship between two variables.

The following correlation matrix was depicted to analyze the sign and the extent of the relationship between the dependent and independent variables. In this study, performance measurement variables are considered as dependent variables. Accordingly, in this study there are three dependent variables; ROA, ROE and NPM and two independent variables; TDTA and TDTC. While, the size of the bank are used as control variable for this study.

The results of correlation analysis in table 4.3 indicate that ROA has negative correlation with TDTA and TDTC while it has a positive correlation with size. While the correlation between ROE with TDTA, TDTC and size is positive. Like ROE, NPM has also a positive correlation with TDTA, TDTC and size. The result of the correlation analysis is consistent with what is expected in the study except the correlation result of NPM. The result of correlation analysis for NPM is a positive with TDTA and TDTC. The correlation result for NPM is consistent with trade off theory. According to this theory more profitable firms utilize debt for finance their activities. From the result of the correlation analysis made in table 4.3 also clearly indicate that there no significant Multicollinearity problem among dependent and independent variables since any of them are not above the conventional 0.80 since a serious problem for

Multicollinearity is occurred if the correlation is about 0.8 or larger (Gujarati 2003). The correlation above 0.8 is occurred among the independent variables and in order to handle this problem the independent variables are used in separate regression model for each independent variable for every performance measurement variables. Table 4.3 also indicate that except the correlation coefficient of capital structure which is measured by TDTA and TDTC and performance which is measured by NPM, the correlation among other variables are statistically significant at 1% level of significance.

Table 4.3; Pearson correlation coefficient matrix

Variables	ROA	ROE	NPM	TDTA	TDTC	SIZE
ROA	1.0000					
ROE	0.6157(0.000)	1.0000				
NPM	0.8513(0.000)	0.7917(0.000)	1.0000			
TDTA	-0.2071(0.0350)	0.4498(0.000)	0.0148(0.882)	1.0000		
TDTC	-0.2648(0.00660)	0.5405(0.000)	0.0738 (0.456)	0.8311(0.000)	1.0000	
SIZE	0.3965 (0.000)	0.7277(0.000)	0.5860(0.000)	0.5210(0.000)	0.5294(0.000)	1.0000

Note: *ROA refers to return on asset, ROE for return on equity, NPM for net profit margin, TDTA for total debt to asset and TDTC for total debt to capital.*

Source*: computed from the financial statement of commercial banks in Ethiopia*

4.5. Tests for the Classical Linear Regression Model (CLRM) Assumptions

The linearity of the parameter is assumed since the model applies linear ordinary least square (OLS).The numbers and types of variables are specified from the theory and empirical studies. The objective of the model is to predict the strength and direction of association among the dependent and independent variables.

4.5.1. Test of Normality

One assumption of classical linear regression model (CLRM) is the normal distribution of the residual part of the model. This assumption has to be tested and pass the test to use the data

for further inference. To check whether the normality the error term assumption was adequately meet the model normality plots and test were developed.

The normality tests for the residual part of the model are indicated in appendix 1 of the appendices section. The P-value of zero predicts the residual of the model is not normally distributed that violets the CLRM assumption. As shown in the appendix 1 the p-value of some examination which is made to test the normal distribution of the error term for the model is near to zero. However, the central limit theorem (CLT) assumes that, distribution of error terms becomes normal as the sample size is large. This model used large sample size and, therefore, there is no serious departure from the assumption of normality of the error terms.

4.5.2. Test for Multicollinearity

The term Multicollinearity indicates the existence of association between two or more of explanatory variables. This association level might be nil that can be ignored or high that significantly affects the estimation of the parameters. If Multicollinearity is perfect, the regression coefficients of the independent variables are undetermined and their standard errors are immeasurable. If Multicollinearity is less than perfect, the regression coefficients, although determinate, possess large standard errors, which mean the coefficients cannot be estimated with great precision or accuracy (Gujarati 2003).

Table 4.4 below indicates that the correlation Matrix made among the independent variables which reveal the slight existence of Multicollinearity problem. Multicollinearity problem is occurred when the explanatory variables are highly correlated with each other. In the correlation matrix it is indicated that there is a little evidence for Multicollinearity problem. A serious problem for Multicollinearity is occurred if the correlation is about 0.8 or larger (Gujarati 2003). Also as stated in Brooks (2008), zero correlation among explanatory variables is not occurring in any practical work. Thus, even though there is some indication for the existence of correlation among the explanatory variables, it does not have a great effect on the accuracy the model.

Table 4.4; Pearson correlation coefficient matrix

Variable	TDTA	TDTC	SIZE
TDTA	1.0000		
TDTC	0.8311	1.0000	
SIZE	0.5210	0.8311	1.0000

***Source**: computed from the financial statement of commercial banks in Ethiopia*

As indicated in table 4.4, the only coefficient above 80% is existed between TDTA and TDTC. To handle this problem, the study uses the independent variables in separate regression model. By having separate model for each independent variable, it is possible to make less problematic for the Multicollinearity problem among the independent variables. This study use two regression models which is estimated via OLS by changing the independent variables. In the first model, the independent variable is total debt to asset ratio while in the second model the independent variable is defined as debt to equity ratio. Even though the Multicollinearity among this independent variable is greater that from the accepted level, by using separate multiple regression models for each independent variable it is likely to maintain the non existence of Multicollinearity problem. The Multicollinearity among other variable are below 0.80 and it can be confident to say there is no significant Multicollinearity since any of them are not above the conventional 0.80.

4.5.3. Test of autocorrelation

The assumption of autocorrelation considers that the average values of the residual or error term are zero. This assumption is maintained if the regression model has constant term as noted in Brooks (2008). Since this study utilize panel data model of analysis and the model has a constant term, the model is not concerned about autocorrelation problem.

4.5.4. Test of Heteroscedasticity

The Homoskedasticity assumption states that the variance (var. $\varepsilon_{i,t}$) of the unobservable error ($\varepsilon_{i,t}$), conditional on the explanatory variables, held constant. Homoskedasticity violated

whenever the variance of the unobservable changes across different segments of the population, which are determined by the different values of the explanatory variables. In this test it is preferred to have Homoskedasticity or constant variance of the error term. (Wooldridge, 1999).

As stated in Wooldridge (1999), in order to maintain the validity for the assumption of Heteroscedasticity , it is better to use robust standard error at the time when the sample size become large whether the error terms have constant variance or not. Thus, as shown in appendix 3 of the regression analysis, the study used robust standard error to keep the soundness of the model. The robust standard errors were applied to the standard errors in order to tackle any instantaneous effect of autocorrelation in turn this maintain the reliability of the result.

4.6. Model Selection; Random Effect versus Fixed Effect Models

The model used to examine the relationship between capital structure and performance of commercial banks in Ethiopia is panel data model which is estimated by using fixed-effects model or random-effect model. The Hausman specification test compares whether fixed-effects model or random-effect model is most appropriate under the null hypothesis that the unit dependent unobserved effect (u_i) or individual effects are uncorrelated with one or more of the independent variables (X_i). For Hausman test, the null and alternative hypotheses are as follows.

H_o: u_i is not correlated with X_i (random- effects model appropriate)

H_1: u_i is correlated with X_i (fixed-effects model appropriate)

To test the null hypothesis, it requires comparing the estimates from the random-effects estimator and the fixed-effects estimator. The random-effects estimator is consistent under the null hypothesis, but inconsistent under the alternative hypothesis. The fixed-effect estimator is consistent under both the null and alternative hypothesis. If the estimates for the random-effects estimator are not significantly different from the estimates for the fixed-effects estimator, then the null hypothesis is accepted and conclude that u_i is not correlated with X_i, and therefore the random-effect model is the appropriate model. If the estimates for the

random effect estimator are significantly differ from the estimates for the fixed-effect estimator, the null is rejected and conclude that u_i is correlated with $X_{i,}$ and therefore the fixed-effect model is the appropriate model.

Appendix 2, demonstrates the Hausman specification test that checks a more efficient model against a less efficient model. The decision rule, for Hausman test, is rejecting the null hypothesis when the p-value is significant. Accordingly, as shown in Appendix 2a of the Hausman specification test the first model has a p-value of 0.0008 for the regression Model of ROA, TDTA and Size. These indicate that the null hypothesis is not accepted and ***fixed effect*** model is appropriate for the given data set. The p-values of the other models are insignificant as seen in the appendix 2. So, this indicates that the null hypothesis is accepted and ***random effect*** model is appropriate for the given data set.

4.7. Regression analysis

In this section the researcher present the result of ordinary least square regression which is made to examine the relationship between capital structure and performance of commercial banks in Ethiopia. Multiple regression models are established to predict the impact of each explanatory variable on the dependent variables. The regression of the models was made and the coefficients of the variables were estimated by using OLS techniques available with STATA version 11 software. As shown in the methodology part, the model used in this study to examine the relationship between capital structure and performance of commercial banks in Ethiopia is;

$$ROA_{i,t} = \beta_0 + \beta_1 TDTA_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

$$ROA_{i,t} = \beta_0 + \beta_1 TDTC_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

$$ROE_{i,t} = \beta_0 + \beta_1 TDTA_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

$$ROE_{i,t} = \beta_0 + \beta_1 TDTC_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

$$NPM_{i,t} = \beta_0 + \beta_1 TDTA_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

$$NPM_{i,t} = \beta_0 + \beta_1 TDTC_{i,t} + \beta_2 \log S_{i,t} + \varepsilon_{i,t}$$

Where:-

$ROA_{i,t}$ = Return on asset assets for firm i in year t.

$ROE_{i,t}$ = Return on equity for firm i in year t.

$NPM_{i,t}$ = Net profit margin for firm i in year t.

$TDTA_{i,t}$ = Total debt to total assets for firm i in year t.

$TDTC_{i,t}$ = Total debt to total capital for firm i in year t.

$\log S_{i,t}$ = logarithm of total assets for firm i in year t.

β_1 and β_2= The coefficients of the explanatory and controllable variables, respectively.

$\varepsilon_{i,t}$ = the error term. It has zero mean, constant variance and non- auto correlated.

In this study performance of the bank is the financial performance measured by return on asset, return on equity and net profit margin for two models independently. The result of the regression analysis is reported by using separate tables for each model.

Table 4.5 below present the result of the regression analysis made to test the relationship between capital structure and bank performance measured by ROA. This table displays the result of the regression analysis for ROA by using two model; Model 1 and Model 2. In both cases the dependent variable is the ratio of return on asset while the independent variable for the first Model is the ratio TDTA whereas, the independent variable for the second model is TDTC. The table also indicate that the relationship between the financial performance of the bank and the control variable size.

Table 4.5 Capital structure and performance measured by ROA

	Performance (ROA)	
Variables	***Model 1***	***Model 2***
TDTA	***-.0983301(0.010)***	*
TDTC	*	***-.0014395(0.000)***
Size	***.0171528(0.000)***	***.013235(0.000)***
R^2	***0.3276***	***0.4619***
No. obs	***104***	***104***

As shown form the above table total debt to asset and total debt to capital has a significant negative effect on the financial performance of the bank measured by return on asset. Apart from this, the control variable; size of the bank has significant positive relation with bank performance which is measured by return on asset.

When comes to individual coefficient among independent variables, in the first model TDTA has a coefficient of -.0983301 with p-value of 0.010 indicate that one percent increase in TDTA reduce ROA by 9.8percent however this relationship is significant at 1 percent level of significant. While in the second model TDTC has a coefficient of -.0014395 with p-value of 0.000 indicate that 1 percent increase in TDTC reduce ROA by 0.1 percent however as the case of TDTA this relationship become significant at 1 percent level of significant. On the contrary in both model size played a robust positive effect on financial performance of the banks. As size increases the financial performance of commercial banks also improve.

Furthermore the above table shows that the R square is 0.3276 for the first model and 0.4619 for the second model this indicate that about 33 percent and 46 percent of variability in return on asset is explained by the variables used in the first and in the second model respectively as shown in the table 5.5. This is due to the explanatory variables are included in separate regression model. The general results of the regression analysis indicate that banks capital structure has a negative relationship with performance of the bank in Ethiopia as it is measured by return on asset.

Table 4.6 below present the second set of the two regression result made to examine the relationship between capital structure measured by the ratio of TDTA in first model as shown under the column of model 1 and the ratio of TDTC in the second model as shown under the column of model 2 and bank performance measured by return on equity. The table also indicate that the relationship between the financial performance of the bank and the control variable size.

Table 4.6 capital structure and performance measured by ROE

	Performance (ROE)	
Variables	*Model 1*	*Model 2*
TDTA	*.2280445(0.205)*	*
TDTC	*	*.0063372(0.031)*
Size	*.1318822(0.000)*	*.1215422(0.000)*
R^2	*0.5364*	*0.5630*
No. obs	*104*	*104*

As shown in the table 4.6, the result indicates that capital structure of the firm which is measured by ROE had a positive relationship with bank capital structure. Consistent with the result of the above regression analysis, the control variable size of the bank has significant positive relation with performance of the bank measured by return on equity.

The result of regression analysis for the individual coefficient of independent variable indicate that the coefficient of TDTA in the first model is .2280445 with p-value of 0.205 and the coefficient of TDTC in the second model is .0063372 with p-value of 0.031. This result indicates that the capital structure variable, TDTA, has positive but statistically insignificant relationship with ROE as shown in model 1 with a p-value of 0.205 whereas TDTC has positive and statistically significant relationship with ROE as shown in model 2 with p-value of 0.031. In relation with this the coefficient of the control variable, size turned out to have a significant positive effect on the financial performance of Ethiopian commercial banks. Size emerged as a significant and positive predictor of financial performance of Ethiopian commercial banks in the study period.

The R- squared statistics which measures the percentage of variance in the dependent variable explained by the first model is 0.5364 and in the second model is 0.5630. This suggests that the variables included in the first and second model explain the variability in return on equity for 54 percent and 56 percent respectively. In general the result of the regression analysis

indicates that leverage has a positive effect on the financial performance of the bank measured by ROE.

Table 4.7 below presents the third set of the two regression models in which the dependent variable was alternatively measured by the ratio of net profit margin. Again, as in the previous case the two models are estimated by changing the capital structure Measurement. The capital structure of the bank is measured by the ratio of TDTA under the first model and the ratio of TDTC under the second model of the regression table. Table 4.7 also shows the relationship between financial performance of the bank and the control variable size.

Table 4.7 capital structure and performance measured by NPM

	Performance (NPM)	
Variables	***Model 1***	***Model 2***
TDTA	***-.9283574 (0.000)***	*
TDTC	*	***-.008218 (0.003)***
Size	***.1531783 (0.000)***	***.1440802 (0.000)***
R^2	***0.4588***	***0.4203***
No. obs	***104***	***104***

The results of the regression analysis of table 4.7 indicate that TDTA and TDTC have significantly negative relationship with performance of the bank measured by net profit margin. On the other hand, size has significantly positive relation with performance of banks. The estimated coefficient of the independent variable and the test statistics indicate that the coefficient of TDTA in the first model is -.9283574 with p-value of 0.000 and the coefficient of TDTC in the second model is -.008218 with p-value of 0.003. As shown in table 5.7 the result of the regression analysis indicates that the two independent variables had statically significant negative effect on performance of commercial banks in Ethiopia when performance is measured by net profit margin. Consistent with the above regression result, in both model size of the bank played a robust positive effect on financial performance of the banks. As size increases the financial performance of commercial banks also improve.

The coefficient of determination or R-square of the first model is that 0.4588 and for the second model the coefficient of determination was 0.4203. this indicate that about 42 percent of variation of the dependent variable, net profit margin, is explained by the variables included in the first model and 46 percent of the variation of net profit margin is explained by the variables included in the second model. Therefore, based on the finding the relationship between capital structure and performance was in accordance with the expected sign.

4.8. Discussions of the Results

The overall results of the study are presented in the preceding section of this paper. This section is dedicated to discuss the general result of the regression analysis by supporting with the empirical evidences. This is undertaken with the reference of the results obtained from the regression analysis made in the previous section to examine the actual financing behavior of commercial banks in Ethiopia with the existing prominent theory of capital structure; trade-off, pecking-order and agency cost theory.

When firms become more profitable, they may want to finance their growth and expansion using equity sources or just borrow. Their financing pattern (equity or debt) of managers may convey some information with regard to which theory more they favor. Regarding with capital structure of the firm, static trade-off theory, pecking order theory and agency cost theory are the most popular theories in the modern corporate finance. These theories support different result for the relationship between capital structure and performance of the firm.

Table 4.8 the expected sign (+/-) of variables based on the theoretical and empirical evidence

Variables	*Trade-off Theory*	*Pecking-Order Theory*	*Expected sign for this study*	*Some empirical evidence for the Expected sign*
ROA	+	–	–	*Adekunle and Sunday (2010), Khan (2012) and Adekunle, Sunday O (2010) zeitun and Tian (2007)*
ROE	+	–	+	*Abor (2005), Ebaid (2009) and Saeedi and Mohoodi (2011)*
NPM	+	–	–	*Umar (2012), Luper and Isaac (2012) and Khan (2012)*
Size	+	–	+	*Pratomo and Ismail (2007), Mumtaz (2013)and Abor (2005)*

Source: Myers 1984; Myers and Majluf 1984; Titman and Wessels 1988; Jensen and Meckling (1976) ; Wald 1999; Stulz 1990 and other studies including Capital Structure Theory

Notes: A positive sign "+" indicates a direct relationship, whereas a negative sign "–" indicates an inverse relationship exists between the dependent and independent variables.

Return on asset

The regression result obtained from table 4.5 is consistent with the hypothesis made in this study. Thus, this study hypostasized that there is a negative relationship between capital structure and performance of commercial banks in Ethiopia which is measured by ROA. Consistent with the hypothesis, the estimated coefficient of the independent variables TDTA and TDTC and the test statistics revealed that the two independent variables had significant negative effect on the performance of commercial banks in Ethiopia when performance is measured by return on asset. This indicates that the higher leverage has an effect to reduce return on asset of commercial banks in Ethiopia.

The finding of current study is being consistent with most past findings in other sectors and countries, seems to suggest against MM hypothesis and rather go hand-in-hand with agency argument. Increased in debt was significantly and negatively associated with return on total assets. A decline in ROA may still be compensated by the multiplier effect. The negative association between debt and return on asset may not necessary be a result of direct causation.

However, return on assets may be affected by the banks efficiency, both operating and asset use efficiency. Thus, the link of the causation may go like this increase in debt has a negative influence on the banks asset or operating efficiency or both. Thus, debt diminishes the banks efficiency where by reducing their profitability or return on total assets. This may have its source to well known agency problems. Especially in the context of commercial banks it is to be observed that much of the debt capital is obtained from small account investors. Their ability to oversee the efficient utilization of asset is far limited.

Besides, the efforts on the part of the bank management to avoid the possibility of bankruptcy with increased debt may cause good investment opportunities to be passed and in turn reduce return on asset. In addition to this, The Ethiopian banking sector is highly regulated institution in the county. As regulated institution, the sector give loans by attaching different debt covenant instrument which is difficult for the borrowing company even if they have a good repayment capacity. These may have a depressing effect for underutilization of the asset of the bank and in turn have a negative effect on the performance of the bank which is measured by ROA since ROA is computed by dividing the net income by total asset of the bank.

The finding of thesis study support the pecking order argument of the capital structure theory which described as the companies utilize higher amount of debt in their capital structure has an effect to lower performance of the firm. This finding have an indication of performance of the bank is increase when the level of internal financing is increase. Thus, the bank that has more capital and reserve is the less which depends on external funds.

As hypothesized at the outset, the findings show that debt had a negative effect on total asset. This is not in line with what MM hypothesis anticipated, it is remarkably consistent with several past empirical results from non financial sectors and other countries. Similar with this study, Salteh (2012), report that a significant negative relationship between ROA with TDTA and TDTC. The study by Adekunle and Sunday (2010) and Khan (2012) is also consistent with the current study in that the studies found similar results regarding with the relationship between debt and return on total assets. Moreover, the finding of current study also agrees with zeitun and Tian (2007) who found negative relation between debt and ROA in their study of non-financial Jordanian firms. These findings are also consistent with Saeedi and Mohoodi

(2011) and Booth et al. (2001) who found the negative relationship between performance and capital structure. In contradict with the finding of Abor (2007) the finding of this study also indicates that capital structure is negatively related to performance measured by return on asset. Apart from the result of this study, Luper and Isaac (2012) found that a positive relationship between total debt to equity and return on asset in their study on capital structure and performance of manufacturing companies in Nigeria.

In agreement with the first hypothesis, the finding of the study indicates that the capital structure of the firm have a significant negative effect on the financial performance of the bank measured by return on asset.

Return on equity

As predicted in the hypothesis the capital structure of the bank has a positive effect on the performance of the bank which is measured by return on equity. However the result of the regression analysis under table 4.6 indicates that the coefficient of this relationship is significant with TDTC and insignificant with TDTA. The insignificant coefficient of TDTA shows that the capital structure of the bank measured by TDTA has no effect on the financial performance of the bank by using ROE as performance measurement variable. While the positive significant coefficient of TDTC shows that there is a direct relationship between leverage measured by TDTC and performance of banks measured by ROE.

The finding of the study indicates that there is a direct relationship between leverage and performance measured by ROE. But, this is not more than crude conclusion because to see whether equity holders of the banks were being awarded commensurate to the financial risks they born, it is necessary to know the return per unit of risk that accrued to equity holders. But, given the available data, such exact measures are out of reach.

To interpret the result in light of MM, as debt increases, so does the financial risk borne by equity holders of the commercial banks. Thus, it is possible to interpret the results such that the observed positive relation between debt and ROE may simply indicate that equity holders demand proportionate rewards to the higher risks they are exposed to as a result of increased debt capital in the bank's capital structure and these finding is consistent with trade off theory

which assume a positive relationship between leverage and performance of firms measured by ROE.

In agreement with the previous empirical work in other industries and countries, and in line with the implications of MM hypothesis, this study found that increases in debt in banks capital structure had a positive effect of increasing return on equity. Similar to the result obtained by Abor (2005) who studied the impact of capital structure on the performance of Ghanaian listed firms, this study, though in different setting, finds that debt, which is measured by the ratio of total debt to equity has significant positive effect on the return on equity of Ethiopian commercial banks during the period covered by the study. the result of the ratio of total debt to asset also agree with the findings of Ebaid (2009), who studied Egyptian listed firms and Saeedi and Mohoodi (2011) who studied the link age of financing choices and firm performance of Iranian firms, they found that there is no significant relationship between debt and ROE. The current study also found insignificant positive relationship between leverage and ROE. Moreover the finding of the study made by Salteh (2012), also found that insignificant relationship between TDTA and ROE while the relationship between total debt to equity denoted by TDTQ has significant relation with ROE.

In contradict with the finding of this study, the negative relation between debt and return on equity is found by Onaolapo (2010) in the study of Nigerian stock exchange listed companies. Similar with the study of Onaolapo (2010) the finding of the study made by Zeitun and Tian (2007) who in the study of Jordanian companies, are not born out in the current study. on the other hand the study made by Umar et.al (2012), which is made on top 100 companies in Pakistan found that a negative but insignificant relation between TDTA and ROE. This difference may be due to sector difference. Mainly, it may be because of some underlining differences between the types firms investigative. While these past studies were conducted on non financial firms, the current study was based on commercial banks. In this case, therefore, one may conclude that the impact of debt on return on equity is contingent on which sector or types of firms are being considered. In fact, by having country wise difference in terms of institution some studies are born with similar finding. For instance the finding of the current study that debt has positive effect on ROE and debt has insignificant effect on ROE is similar with the results obtained by Abor (2005) and Ebaid (2009) even if the two studies are quite

different both in terms of sector as well as institutional context under which the studied firms operated.

To evaluate the finding vis-à-vis hypothesis, the second hypothesis is hypothesized a positive effect of leverage on return on equity, which is borne out by the data. As expected in the second hypothesis, an increase in leverage has a positive relation with return on equity of Ethiopian commercial banks even if TDTA has insignificant positive relation with ROE during the period investigated.

Net profit margin

The results of table 4.7 suggest that the impact of debt to total asset has the effect of decreasing NPM. Thus, debt had a significant negative effect on net profit margin of the banks. As expected in the hypothesis, the coefficient of capital structure measured by TDTA and TDTC has significant and inverse relationship with performance proxy by net profit margin (NPM).

The negative relationship between leverage and net profit margin indicate that the banking industry in Ethiopia is highly depend on the deposit of customer which become the liability of the banks. This might be because of the absence of capital and debt market specially bond market in the country. The banks incurred cost of capital for the amount of fund collected from the customer. At this time the benefit of borrowed capital might be less than the cost of other investment activities that bank incur if the bank engaged in different financial market. Or else the banks might be more profitable if the banks are engaged in diversified market like bond and other debt market than financed largely by the deposit comes from it is customer.

The finding of the study is consistent with the argument of packing order theory in which the capital structure of the firm have a negative effect on the performance of the bank which is measured by net profit margin. Similar with that of ROA leverage and performance of the bank measured by net profit margin have an inverse relationship. This might be due to the amount of cost of capital incurred by the bank for the higher portion of external finance usually debt for this case have a negative effect on the performance of the bank measured by NPM; thus the amount of profit generating by the bank incur high cost of capital

The finding of the study is consistent with the study made by Umar (2012) on top 100 companies in Pakistan in which the study found that significant negative relationship between leverage and NPM. Similarly the finding of the study made by Luper and Isaac (2012) report that a negative relationship between total debt to equity ratio and net profit margin. This result also support the argument made by Khan (2012) which found a high financial leverage reduce performance of the firm measured by net profit margin.

The finding of this study also agrees with the third hypothesis which is hypothesized as leverage ratio has a negatively association with net profit margin of Ethiopian commercial banks. This also corroborated by the data in the sense that estimated coefficient had the expected sign and were significant. So, the third hypothesis is not rejected since the result of the study is concurring with hypothesis that capital structure of the firm has negative relationship with performance measured by net profit margin.

Size

As predicted in the hypothesis of the study, the size of the bank has significant positive relationship with performance measurement variables ROA, ROE and NPM. The result of the regression analysis in table 4.5, table 4.6 and table 4.7 shows that size which is measured by log of total asset; played a robust positive effect on the financial performance of Ethiopian commercial banks. As size increase the financial performance of commercial banks also improve. The result of the study suggests that the size of the bank which is measured by log of total asset has a direct relationship with performance. Different reasons are there behind the positive relationship between size and performance measurement variables. One of the reasons is that the economics of scale that is gained as the size increased. The other reason is that due to low amount of cost of bankruptcy, as the size of the bank increases the borrowing capacity also increase. Since the providers of the fund trust large banks as they have less earning volatility and good performance, they prefer to provide their funds for large size banks. This is due to the believing of too large to fail principle.

The finding of the result is largely consistent with the argument of trade off theory which is described as the size of the firm has a positive effect on the performance of the firm. This might be due to the economics of scale and the positive perception of share holders and other

stack holder of the bank. The results of the regression analysis are in line with the hypothesis of the study in which the performance of the firm has a positive relation with firm size.

This study is consistent with the study made by Pratomo and Ismail (2007), who found positive relationship between performance and the size of the bank on the study made capital structure and performance of Islamic banks in Malaysia. The result of the findings made by Mumtaz (2013) and Abor (2005) Also suggest that as large size firm increase efficiency and affect the performance of the firm positively. On the other hand, the result of this study is contradicted with the result obtained by some researcher that the size of the bank negatively affects the performance of the firm. This argument is supported by Saeedi and Mahmoodi (2011) who indicate the inverse relationship between the size of the firm and performance which is measured by ROA and Tobin's Q. Ahmad et al. (2012) also found insignificant negative relationship between size and ROE.

To sum up; the results of the regression analysis regarding the effect of capital structure on the financial performance unveiled two contradictory results. The first one is the significant negative impact on performance measured by return on asset and net profit margin as shown in Model one and two of table 4.5 and table 4.7 respectively. This result indicate that leverage has a effect to reduce the financial performance of the bank as it is measured by return on asset and net profit margin. The second result in contrast indicate that debt has insignificant positive and significant positive effect on performance of the bank as shown in model 1and model 2 of table 4.6 respectively. This finding reveled that on average debt has positive effect on the financial performance of commercial banks in Ethiopia as measured by return on equity. Moreover, regardless of the performance measurement variables size had a significant positive effect on the financial performance commercial banks in Ethiopia. In general, the results of regression analysis indicate that the choice of capital structure has significant positive or negative relation with the performance of commercial banks in Ethiopia. The finding of this study is consistent with the study made by Saeedi and Mahmoodi (2011) on Iranian Companies, Abbadi and Abu-Rub (2012) Evidenced from the financial institutions of Palestinian and Salteh (2012) Evidence from Tehran Stock Exchange.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

The preceding chapter presented the results of the findings and discussions of the results by supporting with empirical literature. This chapter sum up the study by bring into it is conclusion. Accordingly, the first section is the conclusion part that present a brief summary about the overview of the thesis and the main finding of the study followed by section two; the recommendation part. In the last part of the study direction for future researches is highlighted.

5.1. Conclusion

Capital structure has been an important focus point in the literature since the seminal work of Modigliani and Miller in 1958. Capital structure decision is crucial for any organization in order to enhance the value of the firm in the industry, specifically related with performance of the firm. Even though vast literature is made in developed counties on these issue still it is one of the under studied area in developing country like Ethiopia. In Ethiopia Except a few studies which are also limited their scope on the determinant of banks capital structure, no study is made on capital structure and performance of banks. The purpose of this study to examine the relationship between capital structure and performance of commercial banks in Ethiopia by select eight banks as a sample for the period from 2000 to 2012. This study measure capital structure by using TDTA and TDTC as independent variables and performance is measured by using ROA, ROE and NPM as dependent variables. In addition to these variables, the study used size of the bank as control variables by taking the log of total asset. Before making a regression analysis, the study made various diagnostic tests for the fulfillment of the assumptions of classical linear regression model by using STATA version 11 software.

The result of the descriptive analysis for capital structure variables shows that the Ethiopian banking industry is highly levered institution and their performance is average during the study period. However, the finding of the study is not indicated a clear cut result on the relationship between capital structure and performance of the bank when alternative measures of capital structure and performance measurement variables are employed. The finding of the study shows that capital structure of the bank measured by TDTA and TDTC have significant

negative relation with performance measurement variables of ROA and NPM. While, capital structure has significant positive relation with ROE when it is measured by TDTC and it has insignificant positive relationship with ROE when it is measured by TDTA. In addition to this the result of the regression analysis revealed that the size of the bank has significant positive relation with all performance measurement variables. The overall findings of the regression analysis are agreed with the hypothesis of the study. The next paragraphs discussed the important implications that can be drawn from the contrasting result of the variables used in the study.

The significant negative coefficient between leverage and return on asset indicate that the Ethiopian banking industry followed pecking order theory of capital structure and banks are prefer to use internal source of finance before raising funds from debt or equity. This finding also tells commercial banks in Ethiopia reject trade off theory due to the reason that in most case the amount of debt exceeds from the threshold level of tax shield advantage that comes from high amount of debt. Further, commercial banks in Ethiopia receive funds from small and dispersed individual or investors. These parties have a right to ask the money at any time when they face with the need of funds. Therefore, due to fear of bankruptcy the management may leave out important investment decisions that increase performance of the banks in turn increase return on asset of the banks. In addition to these, the banking industry is more persistent with the well known agency problem. The negative linkage between leverage and return on total asset may also indicate the existence of agency problem in the banking industry of Ethiopia. As leverage increase, the interest of equity holder to monitor bank performance becomes less. On the creditor side because of lack of incentives and recourses, the ability to follow up the bank management is limited. Thus have an indication that increase leverage may let the bank management free from strict monitoring. Hence, the decline in ROA obtains when management pursues its interest at the cost of principals. Observe that ROA is determined by asset use and operating efficiency, among others. Thus, the agency problems alluded to thus far may contribute to lower asset use and/or operating efficiencies thereby giving rise to lower observed return on assets as leverage increased.

The commercial banks in Ethiopia are highly levered institution as it shown in the finding part. The increment of debt has an effect to increase the financial risk associated with the

equity holder of the banks. Risk has a negative association with performance of the bank in both static trades off theory as well as pecking order theory. In opposite with these theories, the positive relation between debt and return on equity may be thought as a deserved compensation made for equity holders for bring increasing financial risk associated with increasing debt and this compensation may have a positive effect on the performance of the bank which is measured by ROE. However, this conclusion is drawn without considering the level of risk and the amount of compensation made by the bank to equity holders as a result of increased leverage due to the limited scope of the study. The positive association between capital structure and performance measured by ROE indicate that the trade off theory of capital structure is supported by commercial banks in Ethiopia.

The negative relation between debt and net profit margin may have its roots to the fact that banks are naturally highly leveraged institutions. As the suggestion of packing order theory a negative relationship between leverage and firm performance is due to the information asymmetry problem. Nonetheless in Ethiopia information asymmetry problem is not a major concern since there is no efficient capital market. In contradict with this the trade off theory argue that a capital structure has positive linkage with performance due to tax shield advantage by considering the cost of bankruptcy. But, banks are naturally highly leverage institution they would have a high possibility to pass a threshold level. So, the negative relationship between debt and performance is caused by the cost of debt is above the tax shield advantage of the bank.

Concerning the size of the bank, the finding of the study reveals that a positive relationship between size and bank performance. These indicate that as the bank size increase, the need for the use of external fund also increase in turn this have a positive effect to increase performance of the bank. This result is consistent with the trade off theory which assumes the direct relationship between performance and the size of the firm. This might be because of the concept of the economics of scale enjoyed by large size firms or the good reputation of the society to ward large banks due to, the society believe too large to fail principle.

The issues of capital structure and performance of the firm are still remain controversial and a puzzle issue around the world. The finding of this study asserted the complexity of the capital

structure-performance linkage. The overall finding of the study indicate that capital structure has positive or negative association with performance and there is an evidence to support trade off theory as well as packing order theory of capital structure that is applicable in the Ethiopian banking industry. In general, from the finding of this study it is possible to conclude that capital structure choice has a significant relation with bank performance and there is an inconsistency of capital structure theory which is applicable in the Ethiopian banking industry.

5.2. Recommendation

On the basis of the findings of the regression analysis and conclusions, the following recommendations were forwarded.

The findings of the study reveal that, the banking sector of the country is highly levered institution. Because, the major parts of the banks operation are financed by the deposit of customer. As indicated in the finding part leverage has an effect to lower the performance of the banks measured by ROA and NPM. So, the bank must consider using optimal capital structure. These means that it is better for the bank if the banks are participate in the practice of making best debt/equity ratio by raising capital from equity finance in order to improve their performance.

The study reports the positive association between leverage and bank performance measured by ROE, which indicates that the portion of cake for equity holder is improved by using debt. Even though the finding reports a direct relation between leverage and ROE, there is an issue that needs to investigate before making any decision by considering this result. As it is known there is a direct relationship between debt and risk of equity capital. Even if the result of this study indicate that debt and ROE are moving in direct positive relation, it does not necessarily follow that equity holder are really getting a better off with more debt. Therefore, before making decision it is important to measure a return with risk.

The findings of this study also suggest the policy implication for commercial banks in Ethiopia. Firstly, this finding can be one incentive for banks to see back their credit policy with respect to the customer status or repayment ability in connection with the collateral requirement to accept the loan requirements and if there is a possibility to relax a collateral

requirements and/or search other means of giving loan in order to enhance their performance. Secondly, the study found negative linkage between leverage and performance measured by ROA and NPM. This has an inference for positive association between equity capital and ROA and NPM. Thus by considering this finding the researcher suggested an intermediary solution may be called up on to address the matter like opining secondary market.

This study is made only to examine the relationship between capital structure and performance of commercial banks in Ethiopia by using selected variables. Future researches may be investigated on the other sectors of the industry to see the consistency of the result with sector difference. In addition to this it is also possible to provide auxiliary results for this study by including other dependent, independent and control variables like short term debt, long term debt, business risk, growth, industry variables, inflation, and the like. Further, it is also possible to see the effect of ownership structure on performance of commercial banks in Ethiopia.

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APPENDICES

Appendix 1; Test for Normality

*Appendix 1a; Normality Test for Model ROA TDTA SIZE

	Shapiro-Wilk W test for normal data				
Variable	Obs	W	V	z	Prob>z
eit_pred1	104	0.99257	0.634	-1.014	0.84475

*Appendix 1b; Normality Test for Model ROA TDTC SIZE

	Shapiro-Wilk W test for normal data				
Variable	Obs	W	V	z	Prob>z
eit_pred2	104	0.98758	1.060	0.130	0.44844

*Appendix 1c; Normality Test for Model ROE TDTA SIZE

	Shapiro-Wilk W test for normal data				
Variable	Obs	W	V	z	Prob>z
eit_pred3	104	0.95123	4.161	3.170	0.00076

*Appendix 1d; Normality Test for Model ROE TDTC SIZE

	Shapiro-Wilk W test for normal data				
Variable	Obs	W	V	z	Prob>z
eit_pred4	104	0.94892	4.358	3.272	0.00053

*Appendix 1e; Normality Test for Model NPM TDTA SIZE

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
eit_pred5	104	0.92616	6.300	4.092	0.00002

*Appendix 1f; Normality Test for Model NPM TDTC SIZE

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
eit_pred6	104	0.93757	5.326	3.718	0.00010

Appendix 2; Hausman Specification Test

* Appendix 2a; Regression Model for ROA TDTA SIZE

---- Coefficients ----

	(b)	(B)	(b-B)	sqrt (diag(V_b-V_B))
	FE1	RE1	Difference	S.E.
TDTA	-.0983301	-.1139235	.0155935	.0106832
SIZE	.0171528	.014256	.0028969	.0007751

Prob > chi2 = 0.0008

. * Appendix 2b; Regression Model for ROA TDTC SIZE

---- Coefficients ----

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))\
	FE2	RE2	Difference	S.E.
TDTC	-.001088	-.0014395	.0003515	.0001758
SIZE	.0150392	.013235	.0018042	.0007724

Prob>chi2 = 0.0637

* Appendix 2c; Regression Model for ROE TDTA SIZE

---- Coefficients ----

	(b) FE3	(B) RE3	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
TDTA	.1839246	.2280445	-.0441199	.1516186
SIZE	.1310686	.1318822	-.0008135	.0111071

Prob>chi2 = 0.9580

*Appendix 2d; Regression Model for ROE TDTC SIZE

---- Coefficients ----

	(b) FE4	(B) RE4	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
TDTC	.0092558	.0063372	.0029186	.0022393
SIZE	.1355723	.1215422	.0140301	.010054

Prob>chi2 = 0.3471

* Appendix 2e; Regression Model for NPM TDTA SIZE

---- Coefficients ----

	(b) FE5	(B) RE5	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
TDTA	-.730213	-.9283574	.1981444	.1632226
SIZE	.162954	.1531783	.0097756	.0119666

Prob>chi2 = 0.3847

. *Appendix 2f; Regression Model for NPM TDTC SIZE

---- Coefficients ----

	(b) FE6	(B) RE6	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
TDTC	-.006347	-.008218	.0018709	.0022989
SIZE	.1473898	.1440802	.0033096	.0101675

Prob>chi2 = 0.6367

Appendix 3; Result of regression analysis

*Appendix 3a; regress ROA TDTA SIZE

Number of obs = 104
F (2, 7) = 83.07
Prob > F = 0.0000
R-sq: overall = 0.3276

ROA	coef.	Robust Std. Err.	t	p>|t|	[95% conf.	Interval]
TDTA	-.0983301	.0281848	-3.49	0.010	-.1649765	-.0316836
SIZE	.0171528	.0015114	11.35	0.000	.013579	.0207267
_CONS	-.0535115	.0181405	-2.95	0.021	-.0964069	-.0106162

*Appendix 3b; regress ROA TDTC SIZE

Number of obs = 104
Wald chi2 (2) = 100.92
Prob > chi2 = 0.0000
R-sq: overall = 0.4619

ROA	coef.	Robust Std. Err.	z	p>|z|	[95% conf.	Interval]
TDTC	-.0014395	.0002581	-5.58	0.000	-.0019453	-.0009337
SIZE	.013235	.0014419	9.18	0.000	.0104089	.016061
_Cons	-.0901207	.0137776	-6.54	0.000	-.1171243	-.0631172

*Appendix 3c; regress ROE TDTA SIZE

Number of obs = 104
Wald chi2 (2) = 58.43
Prob > chi2 = 0.0000
R-sq: overall = 0.5364

ROE	coef.	Robust Std. Err.	z	p>| z |	[95% conf.	Interval]
TDTA	.2280445	.179953	1.27	0.205	-.1246569	.580746
SIZE	.1318822	.0184726	7.14	0.000	.0956766	.1680878
_CONS	-1.23884	.2072233	-5.98	0.000	-1.64499	-.8326895

*Appendix 3d; regress ROE TDTC SIZE

Number of obs = 104
Wald chi2 (2) = 72.14
Prob > chi2 = 0.0000
R-sq: overall = 0.5630

ROE	coef.	Robust Std. Err.	z	p>|z|	[95% conf.	Interval]
TDTC	.0063372	.0029381	2.16	0.031	.0005786	.0120958
SIZE	.1215422	.0155161	7.83	0.000	.0911312	.1519533
_CONS	-.9960474	.1455534	-6.84	0.000	-1.281327	-.7107679

*Appendix 3e; regress NPM TDTA SIZE

Number of obs = 104
Wald chi2 (2) = 94.82
Prob > chi2 = 0.0000
R-sq: overall = 0.4588

NPM	coef.	Robust Std. Err.	z	p>|z|	[95% conf.	Interval]
TDTA	-.9283574	.1887317	-4.92	0.000	-1.298265	-.5584501
SIZE	.1531783	.0158206	9.68	0.000	.1221705	.1841861
_CONS	-.3531618	.1710338	-2.06	0.039	-.688382	-.0179417

*Appendix 3f; regress NPM TDTC SIZE

Number of obs = 104
Wald chi2 (2) = 65.43
Prob > chi2 = 0.0000
R-sq: overall = 0.4203

NPM	coef.	Robust Std. Err.	z	p>|z|	[95% conf.	Interval]
TDTC	-.008218	.0027198	-3.02	0.003	-.0135486	-.0028873
SIZE	.1440802	.0178159	8.09	0.000	.1091616	.1789988
_CONS	-1.012572	.162955	-6.21	0.000	-1.331958	-.6931863