Determinants of Capital Structure of Commercial Banks in Ethiopia

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This is to certify that the thesis prepared by Weldemikael Shibru, entitled: *Determinants of Capital Structure: an Empirical Study on Ethiopian Banking Industry* and submitted in partial fulfillment of the requirements for the degree of Degree of Master of Science (Accounting and Finance) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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ABSTRACT

Determinants of capital structure: An Empirical Study on Ethiopian Banking Industry

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Determining the optimal capital structure is one of the most fundamental policy decisions faced by financial managers. Since optimal debt ratio influences firm's value, different firms determine capital structures at different levels to maximize the value of their firms. Thus, this study examines the relationship between leverage and firm specific (profitability, tangibility, growth, risk, size and liquidity) determinants of capital structure decision, and the theories of capital structure that can explain the capital structure of banks in Ethiopia. In order to investigate these issues a mixed method research approach is utilized, by combining documentary analysis and in-depth interviews. More specifically, the study uses twelve years (2000 - 2011) data for eight banks in Ethiopia.

The findings show that profitability, size, tangibility and liquidity of the banks are important determinants of capital structure of banks in Ethiopia. However, growth and risk of banks are found to have no statistically significant impact on the capital structure of banks in Ethiopia. In addition, the results of the analysis indicate that pecking order theory is pertinent theory in Ethiopian banking industry, whereas there are little evidence to support static trade-off theory and the agency cost theory. Therefore, banks should give consideration to profitability, size, liquidity and tangibility when they determine their optimum capital structure.

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List of Acronyms

CLRM	Classical Linear Regression Model
DW	Durbin Watson
GR	Growth
LEV	Leverage
LQ	Liquidity
NBE	National Bank of Ethiopia
OLS	Ordinary least Square
PR	Profitability
RS	Risk
SZ	Size
TA	Tangibility

Chapter one: Introduction

Capital structure refers to several alternatives that could be adopted by a firm to get the necessary funds for its investing activities in a way that is consistent with its priorities. Most of the effort of the financial decision making process is centered on the determination of the optimal capital structure; where the firms' value is maximized and cost of capital is minimized. Capital structure theory suggests that firms determine what is often referred to as a target debt ratio; which is based on various trade-off between the costs and benefits of debt versus equity. The modern theory of capital structure was first established by Modigliani and Miller (1958). Following the seminal work of Modigliani and Miller (1958), a vast theoretical literature developed, which led to the formulation of alternative theories, such as the static trade off theory, pecking order theory and agency cost theory.

Trade- off theory proposes that the optimal debt ratio is set by balancing the trade-off between the benefit and cost of debt. According to this theory, the optimal capital structure is achieved when the marginal present value of the tax shield on additional debt is equal to the marginal present value of the financial distress cost on additional debt (Myers 1984). Pecking Order Theory emphasizes the information asymmetry between the firm insiders and the outside investors suggesting that firms use debt only when the internal financing is not available (Myers and Majluf 1984). Agency Cost Theory predicts the capital structure choice is based on the existence of agency cost. This theory investigates the relationship between the manager of the firm, and the outside equity and debt holders (Jensen and Meckling 1976).

Starting with Modigliani and Miller (1958), the literature on capital structure has been expanded by many theoretical and empirical contributions. For non-financial firms the empirical literature has generally converged on particular variables that have been found to be consistently correlated with leverage such as: age, size, growth, profitability, market-to-book ratio, collateral value and dividend policy. On the other hand, the capital structure of banks is still a relatively under-explored area in the banking literature. Currently, there is no clear understanding on how banks choose their capital structure and what factors influence their corporate financing behavior (Amidu 2007).

In Ethiopia as to the knowledge of the researcher there were few studies which relate with this title these are, Ashenafi (2005) a case study in Addis Ababa Small and Medium enterprises, Amanuel (2011) evidence from manufacturing share companies of Addis Ababa city and Bayeh (2011) evidence from Ethiopian insurance company. Therefore, given the unique financial features of banks and the environment in which they operate, there are strong grounds for a separate study on capital structure determinants of banks in Ethiopia.

Therefore, the main purpose of this study was to examine the relationship between leverage and determinants of capital structure decision of banks in Ethiopia. This will equip financial managers with applied knowledge of determining their capital structure, and play role in filling gap in understanding of the capital structure decision.

The remainder of this chapter is organized as follows. Section 1.1 presents the statement of the problem. Section 1.2 presents objective, research questions and hypothesis of the study. Section 1.3 presents research methodology used. Section 1.4 presents the scope of

the study. Section 1.5 presents significance of the study. Finally, Section 1.6 presents organization of the study.

1.1. Statement of the problem

While the choice of capital structure is one of the most important strategic financial decisions of firms, it has been the subject of considerable debate and investigation. The debate on what drives capital structure decisions is still open. Following the seminal work of Modigliani and Miller (1958), a vast theoretical literature developed, which led to the formulation of alternative theories, such as the static trade off model, pecking order theory and agency cost theory. These theories point to a number of specific factors that may affect the capital structure of firms such as (profitability, size, tangibility, growth, risk, liquidity, age, dividend payout). However, the empirical evidence regarding the alternative theories is still questionable (Rajan and Zingales 1995). For example, Static trade off-theory assumes a firm's optimal debt ratio is determined by a trade-off between the bankruptcy cost and tax advantage of borrowing, holding the firm's assets and investment plans constant. According to this theory, higher profitability lower the expected cost of distress, therefore, firms increase their leverage to take advantage from tax benefits. Which means in other word profitability is positively related with leverage. As well agency theory supports this positive relation because of the free cash flow theory of Jensen (1986). But, pecking order theory Myers and Majluf (1984) throws doubt on the existence of target capital structure, suggesting that firms use debt only when the internal financing is not available. For this reason profitability is expected to have negative relation with leverage.

The determinants of capital structure have been debated for many years and still represent one of the most unsolved issues in corporate finance literature. Indeed, what makes the capital structure debates so exciting is that only a few of the developed theories have been tested by empirical studies and the theories themselves lead to different, not mutually exclusive and sometimes opposed result and conclusion (Rajan and Zingales 1995). Morri and Beretta (2008) explained many theoretical studies and much empirical research have addressed those issues, but there is not yet a fully supported and commonly accepted theory; and the debate on the significance of determinant factors is still unfolded.

Besides, although earlier studies have tremendous contributions to the theory of capital structure, they were limited to developed financial system and restricted to non-banks. Less developed countries like, Ethiopia, received little attention in the literature. According to Octavia and Brown (2008) the capital structure of banks are still a relatively under-explored area in the banking literature and the special nature of the deposit contract, the degree of leverage in banking and the regulatory constraints imposed on banks have meant that banks (and financial institutions in general) have been excluded in previous empirical studies on standard capital structure choice. Nevertheless, understanding the determinants of capital structure is as important for banks as for non-banks firms. According to Amidu (2007) currently, there is no clear understanding on how banks choose their capital structure and what factors influence their corporate financing behavior. Thus, the lack of agreement about what would qualify as optimal capital structure and lack of literature in the case of Ethiopia has motivated this study.

Therefore, this study tried to find out the relationship between leverage and firm specific determinants of capital structure decision.

1.2. Objective, research questions and hypotheses

The main objective of this study was to examine the relationship between leverage and firm specific (profitability, tangibility, growth, risk, size and liquidity) determinants of capital structure decision and to understand about the theories of capital structure that can explain the capital structure of the Ethiopian banking industry.

Based on the broad research objective, the following research questions and hypotheses were developed.

Research questions (RQ)

RQ1. What determine the capital structure of banks in Ethiopia?

RQ2. Which theory explians the financing behavior adopted by Ethiopian banking industry?

Hypotheses (HP)

To achieve the objective of this study, in addition to the research questions presented above six hypotheses concerning the determinants of capital structure choice on the Ethiopian banking industry were tested

Profitability:

Capital structure theories have different views on the relationship between leverage and profitability. The trade-off theory argues that firms generally prefer debt for tax

considerations. Profitable firms would, therefore, employ more debt because increased leverage would increase the value of their debt tax shield (Myers 1984).

In addition to the tax advantage of debt, agency and bankruptcy costs may encourage highly profitable firms to have more debt in their capital structure. This is because highly profitable firms are less likely to be subject to bankruptcy risk because of their increased ability to meet debt repayment obligations. Thus, they will demand more debt to maximize their tax shield at more attractive costs of debt. For these considerations, the trade-off theory predicts a positive Relationship between leverage and profitability.

However, the pecking order theory of Myers and Majluf (1984) predicts the opposite. It predicts a negative association between leverage and profitability because high profitable firms will be able to generate more funds through retained earnings and then have less leverage. Therefore, it is expected that there is negative relationship between profitability and leverage ratio.

Hypothesis 1: *There is a negative relationship between leverage ratios and profitability.*

Growth:

According to pecking order theory firms with high growth will tend to look to external funds to finance the growth. Myers (1977) confirms this and concludes that firms with a higher proportion of their market value accounted for by growth opportunity will have debt capacity. Therefore, it is expected that there is a positive relationship between growth and leverage ratio

Hypothesis 2: There is a positive relationship between leverage ratios and growth.

Tangibility:

Tangibility is an important determinant of the capital structure of a firm. The trade-off theory predicts a positive relation between tangibility and debt levels. As the value of intangible assets disappears (almost entirely) in the cases of bankruptcies, the presence of tangible assets is expected to be important in external borrowing as it is easy to collateralize them. Tangible assets often reduce the costs of financial distress because they tend to have higher liquidation value (Titman and Wessels 1988; Harris and Raviv 1991). Pecking order theory of Myers and Majluf, (1984) conclude that issuing debt secured by property, avoids the costs associated with issuing shares. This suggests that firms with more collateralized assets (fixed assets) will be able to issue more debt at an attractive rate as debt may be more readily available. This results in a positive association between leverage and tangibility. Therefore, it is expected that there is a positive relationship between tangibility and leverage ratio.

Hypothesis 3: There is a positive relationship between leverage ratios and tangibility.

Risk

Given agency and bankruptcy costs, there are incentives for the firm not to utilize the tax benefit of debt within the static framework model. Firms with high earnings volatility face a risk of the earnings level dropping below their debt servicing commitments, thereby incurring a higher cost of financial distress. Accordingly, these firms should reduce their leverage level to avoid the risk of bankruptcy. Therefore, the trade-off theory predicts a negative relationship between leverage and earning volatility of a firm's. The pecking order theory allows the same prediction. Empirical evidence suggests that there

is a negative relationship between risk and leverage (Titman and Wessels, 1988). Hence, risk is expected to have negative impact on leverage ratio.

Hypothesis 4: There is a negative relationship between leverage ratios and risk.

Size

According to trade-off theory, firm size could be an inverse proxy for the probability of the bankruptcy costs. Larger firms are likely to be more diversified and fail less often. They can lower costs (relative to firm value) in the occasion of bankruptcy. Larger firms are more likely to have higher debt capacity and are expected to borrow more to maximize the tax benefit from debt because of diversification (Titman and Wessels (1988). Therefore, size has a positive effect on leverage. Size can be regarded as a proxy for information asymmetry between managers and outside investors. Large firms are subject to more news than small firms because the investment community would be more concerned with gathering and providing information about large firms. This makes large firms more closely observed by analysts and less subject to information asymmetry than small firms. Thus, they should be more capable of issuing equity which is more sensitive to information asymmetry and have lower debt (Rajan and Zingales, 1995). This suggests that pecking order theory predicts a negative association between leverage and the size of firm.

Hypotheses 5: There is a positive relationship between leverage ratios and size.

Liquidity

There are two different opinions on the association between liquidity and capital structure: First view implies a positive significant relation that is consistent with trade off

theory. Companies with more liquidity (more current assets) tend to use more external borrowing, because of their ability in paying off their liabilities. Second view points to a negative significant relation that is consistent with the pecking order theory, arguing that companies with more liquidity will decrease external financing, relying on their internal funds. Thus, liquidity ratios may have a mixed effect on the capital structure decisions. Most of the previous studies, confirm the negative relation, (Ahmed et al., 2010, and Najjar and Petrov 2011). Hence, liquidity is expected to have negative impact on leverage ratio

Hypothesis 6: There is a negative relationship between leverage ratios and liquidity.

1.3. Research methodology

In order to achieve the objective stated in the preceding section, considering the nature of the problem and the research perspective this study used mixed research approach. A mixed methods approach was chosen as it increases the likelihood that research generates more accurate results than is the case if a single method had been adopted. As noted in Creswell (2009) mixed research is an approach that combines or associates both qualitative and quantitative research methods. It is also more than simply collecting and analyzing both kinds of data, it involves the use of both approaches in tandem so that the overall strength of a study is greater than either qualitative or quantitative research. As a result, mixed methods provide a more accurate picture of the phenomena being investigated.

The method adopted consists of structured document reviews and in-depth interviews to collect the necessary data. Accordingly, the data related to a documentary analysis which

is necessary to undertake this study were gathered from the financial statements of eight banks and NBE for twelve consecutive years (2000-2011) and the data was the audited financial statements particularly balance sheet and income statement. Beside, in-depth interview with five finance managers of the selected banks were utilized to gain a greater insight into the findings from documentary analysis. Finally, the study analyses the results obtained from the above mentioned data sources using both descriptive as well as inferential statistics.

1.4. Scope and limitation of the study

The scope of this study was limited to the relationship between leverage and determinants of capital structure decision of Ethiopian banks over the period 2000 to 2011. To this end, this study was limited to firm specific determinant of capital structure (profitability, tangibility, growth, risk, size and liquidity) and theories of capital structure that can explain the capital structure of Ethiopian banking industry. The major limitations that hamper the study were resource constraint and unavailability of active secondary market which forced the researcher to measure the dependent variable i.e. measures of leverage as well as the proxies of the independent variables in terms of book values rather than market values.

1.5. Significance of the study

Some studies investigated the determinants of capital structure of firms in Ethiopia. However, to the best knowledge of the researcher no single study has focused on the banking industry of Ethiopia. Thus, this study will have significant role to play in filling gap in understanding of the capital structure decision for banks in Ethiopia. Such an

understanding is important, because it equips financial managers with applied knowledge of determining their capital structure. As an appropriate capital structure is important to a firm as it will help in dealing with competitive environment within which the firm operates, and which will maximize the return of the stockholders by increasing the value of the firm. Additionally, this study will be used as an input to researchers for further research on determinant of capital structure.

1.6. Organization of the thesis

This study is organized into five chapters. Chapter one presents research introduction, statement of the problem, objective of the study, research question and hypothesis, scope and limitation, and significance of the study. Following on this, chapter two of the study presents review of theoretical and empirical literatures on determinants of capital structure. Chapter three presents the research methodology. Then, chapter four present results and analysis of the study and finally, chapter five present conclusions and possible recommendations.

Chapter Two: Review of related literature

Capital structure refers to several alternatives that could be adopted by a firm to get the necessary funds for its investing activities in a way that is consistent with its priorities. Two major sources of financing that are available to firms are debt and equity. The mixture of debt and equity is called capital structure. Most of the effort of the financial decision making process is centered on the determination of the optimal capital structure; where the firms' value is maximized and cost of capital is minimized. This chapter presents the theoretical and empirical literature review over the capital structure theme. Section 2.1 covers theoretical literature review, section 2.2 covers reviews of prior empirical studies including those conducted in Ethiopia and section 2.3 provides conclusions and knowledge gap.

2.1. Theoretical review

The literature shows the existence of different theories related to capital structure. These theories include Modigliani and miller (MM), static trade-off theory, pecking order theory, and agency cost theory. The purpose of this section is, hence, to review these theories of capital structure in an orderly.

2.1.1. Modigliani and Miller (MM) theory

Modigliani and Miller (1958) argued that capital structure is irrelevant to the value of a firm under perfect capital market conditions with no corporate tax and no bankruptcy cost. This implies that the firm's debt to equity ratio does not influence its cost of capital. A firm's value is only determined by its real asset, and it cannot be changed by pure

capital structure management. Consequently, it means that there is no optimal capital structure.

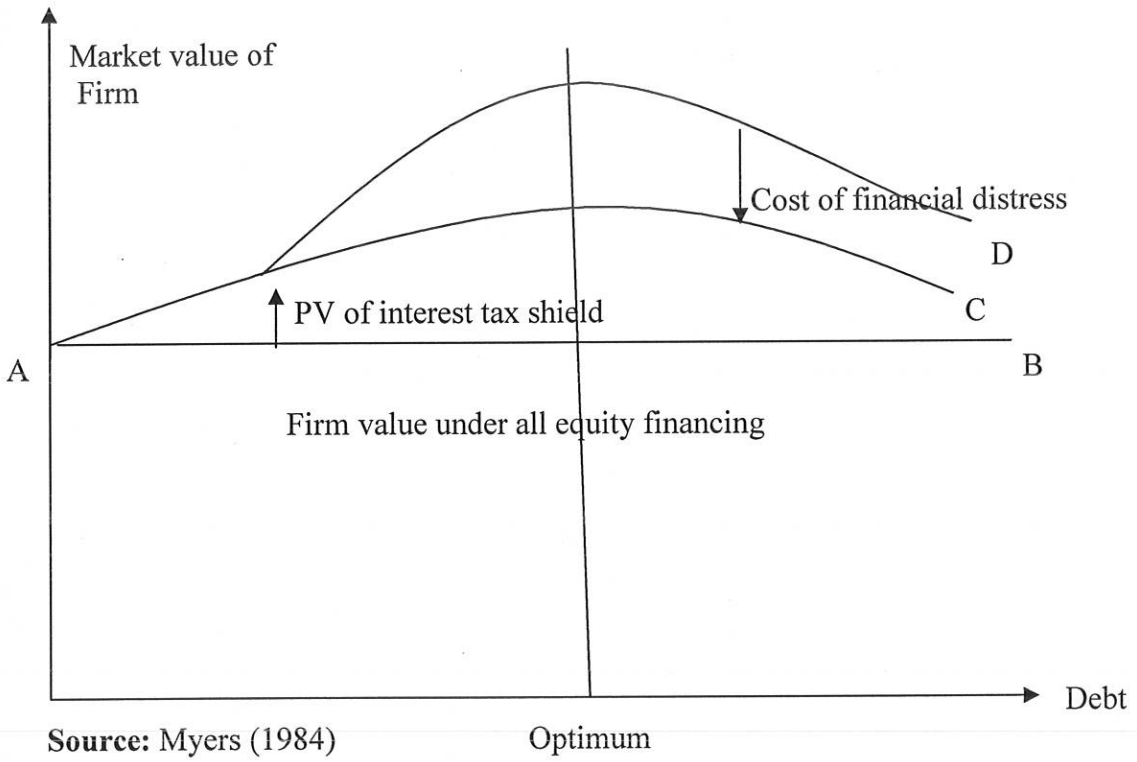
However, there is a fundamental difference between debt financing and equity financing in the real world with corporate taxes. Dividends paid to shareholders come from the after tax profit. By contrast, interest paid to bondholders comes out of the before-tax profits. Thus, Miller and Modigliani (1963) argued that in the presence of corporate taxes, a value-maximizing company can obtain an optimal capital structure. In other words, if the market is not perfect, as result of, say, the existence of taxes, or of underdeveloped financial markets, or of inefficient case, firms must consider the costs entailed by these imperfections. A proper decision on capital structure can be helpful to minimize these costs.

2.1.2. Static Trade-off Theory

Trade-off theory claimed that a firm's optimal debt ratio is determined by a trade-off between the bankruptcy cost and tax advantage of borrowing, holding the firm's assets and investment plans constant (Myers, 1984). The goal is to maximize the firm value for that reason debt and equity are used as substitutes. According to this theory, higher profitability decreases the expected costs of distress and let firms increase their tax benefits by raising leverage; therefore, firms should prefer debt financing because of the tax benefit. As per this theory firms can borrow up to the point where the tax benefit from an extra dollar in debt is exactly equal to the cost that comes from the increased probability of financial distress (Ross, 2002, p.586).

Due to the net tax advantage to corporate debt financing, the firm's optimal capital structure will involve distinctions in firm-specific characteristics, target leverage ratios will vary from company to company. Institutional differences, such as different financial systems, tax rate and bankruptcy law etc, will also lead the target ratio to differ across countries. The trade-off theory predicts that safe firms, firms with more tangible assets and more taxable income to shield should have high debt ratios. While risky firms, firms with more intangible assets that the value will disappear in case of liquidation, ought to rely more on equity financing. In terms of profitability, trade-off theory predicts that more profitable firms should mean more debt-serving capacity and more taxable income to shield, Therefore, based on this theory, firms would prefer debt over equity until the point where the probability of financial distress starts to be important. This is illustrated by figure 2.1

Figure 2.1: The-static-tradeoff theory of capital structure



Source: Myers (1984)

In figure 2.1 the straight line AB shows the market value of the firm under the Modigliani and Miller (1958) regime, in which the value of the firm is irrelevant and the capital structure is equal to the value of an all-equity firm. If a firm uses debt in their capital structure they have to pay interest which is generally tax deductible. Interest payments act as a tax shield and allow the firm to increase its value. As the firm takes more debt its value increases (curve AC). However, after a certain proportion of debt (the optimum level) the value of the firm starts to decrease as the costs of debt start to outweigh the benefits of debt. Curve AD illustrates how the costs of financial distress rise as firms use increasing amounts of debt in their capital structure. At higher levels of debt the interest payments of firms increase to cover for the potential risk of financial distress. Firms trade-off the tax benefits that may be gained through using debt with costs of financial distress and agency costs to maintain an optimal level of debt in their capital structure as shown in figure 2.1.

The general results of various work in this aspect of leverage choice is that if there are significant leverage-related costs, such as bankruptcy costs, agency costs of debt, and loss of non-debt tax shields, and if the income from equity is untaxed, then the marginal bondholder's tax rate will be less than the corporate rate and there will be a positive trade-off between the tax advantage of debt and various leverage-related costs.

2.1.3. Pecking order theory

Pecking Order Theory is developed by Myers and Majluf (1984) which stated that capital structure is driven by firm's desire to finance new investments, first internally, then with low-risk debt, and finally if all fails, with equity. Therefore, the firms prefer internal

financing to external financing. The pecking order theory discussed the relationship between asymmetric information and investment and financing decisions. According to this theory, informational asymmetry, which firm's managers or insiders have inside information about the firm's returns or investment opportunities, increases the leverage of the firm with the same extent. So due to the asymmetric information and signaling problems associated with external financing, the financing choices of firms follow an order, with a preference for internal over external finance and for debt over equity.

Myers and Majluf (1984) argued that the capital structure can help to mitigate inefficiencies in a firm's investment decision that are caused by information asymmetries. They demonstrate that if there is an asymmetry of information between investors and firm insiders, then the firm's equity may be underpriced by the market. As a result, new equity, which is used to finance new investment projects, will be also under-priced. Therefore, if management has favorable inside information and acts in the best interest of the existing shareholders, then management will refuse to issue equity even if it means passing up positive net present value projects because the net loss to existing shareholders (due to under-pricing problem) might outweigh the project's Net present values. On the other hand, passing up positive net present value projects is contrary to the wealth maximization. Using financial sources that may not be undervalued by the market, particularly internally generated funds could solve this under-investment problem. Accordingly, the existence of sufficient internal finance allows firms to accept desirable investments without relying on costly external finance.

Myers and Majluf (1984), also argued that firms are most likely to generate financial slack (i.e. liquid assets such as cash and marketable securities) to be used for internal funding. Thus, in order to protect present shareholders, firms with financial slack and in the presence of asymmetric information, will not issue equity, even though it may involve passing up a good investment opportunity. If investors realize this point, then the market will take the decision not to issue shares as good news. On the other hand, if management does offer a new share issue, it will be interpreted as a bad news, and the firm's share issue will be under-priced. This adverse selection problem has an influence on the choice between internal and external financing. This choice leads to the Pecking Order theory, which Myers (1984) summarized as follows: Firms prefer internal finance. Firms adjust their target dividend payout ratios to their investment opportunities, although dividends are sticky and target payout ratios are gradually adjusted to shifts in available investment opportunities. Sticky dividend policies as well as unpredictable fluctuations in both profitability and investment opportunities mean that internally generated funds are more or less than investment outlays. If internally generated cash flow is less than investment outlays, the firm first exhausts its cash balances or marketable securities portfolio. If external financing is required, firms will resort to the safest security first. They start with debt, then hybrid securities such as convertible bonds and finally equity as a last resort. A single optimal or target debt-equity ratio does not exist in the pecking order theory since financing decision does not rely on the trade- off between marginal benefits and costs of debt.

Moreover, Myers (1984) introduced implication similar to the pecking order theory known as the modified pecking order theory. In this framework, both asymmetric

information and costs of financial distress are incorporated. Myers argued that as firm climbs up the pecking order it faces higher probability of both incurring costs of financial distress and passing up future positive net present value projects. Thus, firm may rationally decide to reduce these costs by issuing stock now though new equity is not needed immediately to finance real investment, just to obtain financial slack and move the firm down the pecking order. Therefore, when issuing new capital, those costs are very high, but for internal funds, costs can be considered as none. For debt, the costs are in an intermediate position between equity and internal funds. Therefore, firms prefer first internal financing (retained earnings), then debt and they choose equity as a last option.

2.1.4. Agency cost theory

Agency theory focused on the costs which are created due to conflicts of interest between shareholders, managers and debt holders. According to Jensen and Meckling (1976), capital structures are determined by agency costs, which includes the costs for both debt and equity issue. The costs related to equity issue may include:

- The monitoring expenses of the principal (the equity holders)
- The bonding expenses of the agent (the manager)
- Reduced welfare for principal due to the divergence of agent's decisions from those which maximize the welfare of the principal.

Besides, debt issue increases the owner-manager's incentive to invest in high-risk projects that yield high returns to the owner-manager but increase the likelihood of failure that the debt holders have to share if it is realized. If debt holders anticipate this, higher premium will be required which in turns increase the costs of debt. Then, the

agency costs of debt include the opportunity costs caused by the impact of debt on the investment decisions of the firm; the monitoring and bond expenditures by both the bondholders and the owner-manager; and the costs associated with bankruptcy and reorganization. Since both equity and debt incur agency costs, the optimal debt-equity ratio involves a trade-off between the two types of cost.

Jensen and Meckling (1976) introduced two types of conflicts that are a major source of agency costs and these are: agency costs that arise due to the conflicts of interest between managers and shareholders and agency costs that arise as a result of the conflicts of interest between shareholders and debt holders. The subsequent discussions present shareholders-managers conflicts and shareholder-bondholder conflicts in an orderly manner.

2.1.4.1. Shareholders-managers conflicts

This kind of conflict stems from the separation of ownership and control. If managers do not own 100% of the firm, they can only capture a fraction of the gain earned from their value enhancement activities but they need to bear the entire costs of these activities. The shareholders-managers conflicts take several distinct forms:

- According to Jensen and Meckling (1976) managers prefer to make use of less effort and have greater perquisite levels, such as luxuriant office and corporate jets, different from the shareholder's interest of firm value maximization. In this case, increasing the managers' equity holdings will help to align the interests of shareholders and managers. Or, keeping managers equity investment constant, increasing the debt level also helps to mitigate the loss of

conflicts between shareholders and managers. Since debt forces managers to pay out cash, reducing the free cash flow managers can waste on the perquisites.

- According to Masulis (1988) conflict may arise because managers may prefer short-term projects, which produce results early and enhance their reputation quickly, rather than more profitable long-term projects.
- According to Harris and Raviv (1991) managers want to stay in their positions, so they wish to minimize the likelihood of employment termination. As this increases with changes in corporate control, management may resist takeovers, irrespective of their effect on shareholder value. On operating decisions, managers and shareholders may also have different preferences: Harris and Raviv (1991) observed that managers will typically wish to continue operating the firm even if liquidation is preferred by shareholders.

A special case of the conflicts between shareholders and managers is the over investment problem. Jensen (1986) argued that, instead of working under shareholders interests to maximize firm's value, managers prefer to increase firm's size to enjoy the benefit of control. In this case, managers have incentives to cause their firm to grow beyond the optimal size and accept negative net present value (NPV) projects. Jensen (1986) argued that the overinvestment problem can be motivated by more free cash flow and less growth opportunities. Issuing debt helps to mitigate agency problems that arise from managerial behavior under divergent interests between shareholders and managers. For example, the overinvestment problem can be mitigated by issuing debt since debt obligates firm to pay out cash so prevents managers from investing in negative NPV

projects. Jensen (1986) refers to the non-discretionary nature of debt as the disciplining role of debt. As Hunsaker (1999) pointed out, an increase in debt also increases the risk of bankruptcy, therefore limits management's consumption of perquisites. Besides, issue convertible debt also helps to discipline managers' behavior because they give managers a chance to share in a firm's profits in case of good performance and thus reduces the monitoring costs.

2.1.4.2. Shareholder-bondholder conflicts

The typical phenomenon of these conflicts is that the shareholders or their representatives make decisions transferring wealth from bondholders to shareholders. Certainly, the bondholders are aware of the situations in which this wealth expropriation may occur, therefore, will demand a higher return on their bonds or debts. Different fundamental sources of equity-holders and debt-holders conflicts have been identified in the agency cost literature;

- The direct wealth-transfer from bondholders to shareholders (Smith and Warner 1979): Shareholders can increase their wealth at the expense of bondholders' interests by increasing the dividend payment; the issuance of debt with higher priority will expropriate wealth from current bondholders.
- Asset-substitution is another source of the conflicts (Jensen and Meckling 1976): When signing debt contracts, bondholders demand an interest rate according to the riskiness of the firm's investment activities. While debt contracts gives shareholders an incentive to invest in risky projects because if it succeeds the returns above the face value of debt will be owned by shareholders and in case of

failure, the consequence is mainly born by bondholders because of shareholders' limited liability. This excessive return from risky projects makes safe projects less attractive to shareholders since returns from the safe projects are sufficient to pay the bondholders. If bondholders can anticipate shareholders incentive of substituting safe projects by risky projects, they will ask for a higher risk premium. Also the anticipation of wealth expropriation will lead to the increase in risk premium. The increased costs of debt are then born by shareholders since they are residual claimants of the firm.

- Underinvestment problem is another agency problem results in shareholder-bondholder conflicts Myers (1977): Underinvestment problem mostly incurs in financial distress. The extension of debt decreases the shareholders incentives to invest in new projects (even the projects with high growth opportunities will be passed through) because the profits from these projects will be exhausted in debt repayment.

One way to minimize these conflicts is that firms with high growth opportunities should have lower leverage. The conflicts can also be mitigated by adjusting the properties of the debt contracts, for example, the adjustment can be done by including covenants such as adding limits on the dividends payment or setting restrictions on the disposition of assets. Alternatively, debt can be secured by collateralization of tangible assets in the debt contracts.

Determinants of capital structure

As shown in chapter one theoretically there are a large number of potential factors that may have an impact on leverage ratio. These factors include size of the firm, tangibility,

profitability, risk, growth, and liquidity. However, there is a significant disagreement among the capital structure theories, in particular, between the trade-off and the pecking order theories about the influence of some factors on the firm's capital structure, hence, the issue remains as question to be addressed.

2.2. Empirical studies on the determinants of capital structure

Since the pioneering work of Modigliani and Miller (1958), the question of what determines firms' choices of capital structure has been a major field in the corporate finance literature. Since then, several studies have been conducted in developing and developed countries to identify those factors that have an effect on firms' choice of capital structure. Given the time constraint and the amount of empirical literature available on the topic of this research it would have been quite difficult to present the results of all the studies. Thus, the review of the empirical studies in this section on the determinants of capital structure decision has a particular focus on those that have been conducted since the 1988s.

Titman and Wessels (1988) studied the determinant of capital structure choice by examining them empirically. They extended empirical work on capital structure theory in three ways. First, they examined a much broader set of capital structure theories, many of which have not previously been analyzed empirically. Second, since the theories have different empirical implications in regard to different types of debt instruments, the authors analyzed measures of short-term, long-term, and convertible debt rather than an aggregate measure of total debt. Third, they used a factor-analytic technique that mitigates the measurement problems encountered when working with proxy variables.

Titman and Wessels (1988) specifically tested how asset structure, non-debt tax shields, growth, uniqueness, industry classification, firm size, earnings volatility and profitability can affect the firm's debt-equity choice. Their results indicated that debt levels are negatively related to the uniqueness of a firm's line of business. The short-term debt ratio was negatively related to firm size. Besides that, a strong negative relationship was noted between debt ratios and past profitability which is consistence with pecking order theory Myers and Majluf (1984). However, they did not provide strong empirical support on variables like non-debt tax shields, volatility, collateral value and future growth.

In a comparative study, Rajan and Zingles (1995) investigated whether the capital structure in other developed countries is related to factors similar to those influencing the US companies for the period of 1987-1991. Tangible assets, market to book ratio, firm size and profitability are suggested as determinants of capital structure in these countries. They find that firms with more collateralized assets are not highly levered. In addition, they found that profitability and market to book ratio are negatively related to leverage. However, they argue that the negative relationship with leverage appeared to be driven by firms with high market to book ratio rather than by firms with low market to book ratio. The study provides no evidence supporting the effect of the firm size on leverage. Finally, the findings were not varied across the G-7 countries so they concluded that capital structure in other countries was affected by factors similar to those that influence the US companies.

Booth et al. (2001) assessed whether capital structure theory is portable across developing countries with different institutional structures. The sample firms in their study are from Malaysia, Zimbabwe, Mexico, Brazil, Turkey, Jordan, India, Pakistan, Thailand, and Korea. Booth *et al.* (2001) use three measure of debt ratio; total debt ratio, long-term book debt ratio, and long-term market debt ratio with average tax rate, assets tangibility, business risk, size, profitability, and the market to book ratio as explanatory variables. The study showed that the more profitable the firm, the lower the debt ratio, regardless of how the debt ratio was defined. It also showed that the more the tangible assets, the higher the long-term debt ratio but the smaller the total debt ratio.

Booth et al. (2001) concluded that the debt ratio in developing countries seemed to be affected in the same way by the same types of variables that were significant in developed countries. However, they pointed out that the long-term debt ratios of those countries are considerably lower than those of developed countries. This finding may indicate that the agency costs of debt are significantly large in developing countries or markets for long term debt are not effectively functioning in these countries. Finally, Booth et al. (2001) argued that their results are in line with Rajan and Zingales (1995) except for the tax and the market-to-book ratio.

Bevan and Danbolt (2002) who extended the work of Rajan and Zingales (1995) tested the determinants of capital structure in the United Kingdom non-financial firms by using four measures of financial leverage. They used non-equity liabilities to total assets, total debt to total assets, total debt to capital (where capital is defined as total debt plus

common shares with preferred shares), and adjusted debt to adjusted capital. All the measures were regressed on market-to-book value, natural logarithm of sales (size), profitability, and tangibility of assets. They found that determinants of capital structure were significantly changed with respect to each measure of debt used. With the same leverage definition as Rajan and Zingales, Bevan and Danbolt (2002) reported similar results.

In their later paper, Bevan and Danbolt (2004) analyzed the determinants of capital structure of 1054 UK Companies from the period 1991-1997. Secondly, they also investigated the extent to which the influence of these determinants is affected by time-invariant and firm specific heterogeneity. Bevan and Danbolt (2004) as Bevan and Danbolt (2002) use market-to book value, natural logarithm of sales (size), profitability, and tangibility of assets as determinants of capital structure. In addition to the time invariant and firm specific heterogeneity, the focus was on the variety of long - run and short run debts components rather than on the aggregate measures. They found that large firms use long and short term debt more than small ones. Tangibility is found to be positively related to both short and long-term debt, while profitability is found to be negatively related. However, they find that profitable firms tend to use short-term debt more than less profitable one.

The paper of Deesomsak et al. (2004) investigated the determinants of capital structure of firms operating in the Asia Pacific region, in four countries with different legal, financial and institutional environments, namely Thailand, Malaysia, Singapore and Australia.

OLS estimation model was used to analyze sample data included 294 Thailand, 669 Malaysian, 345 Singaporean, and 219 Australian firms for the period 1993-2001. Overall they found leverage to be positively related to firm size and growth opportunities, non-debt tax shields, liquidity to be negatively related to leverage. Moreover, they also found that capital structure decision is not only the product of the firm's own characteristics but is also affected by the specific corporate governance, legal structure and institutional environment of the countries.

The paper of Huang and Song (2005) employed regression model to document the determinants of capital structure of Chinese listed companies. The data included market and accounting figures of more than 1200 companies for the time period 1994-2003. They find that leverage (long-term debt ratio, total debt ratio, and total liability ratio) decreases with profitability, non-debt tax shield and managerial shareholdings, while it increases with firm size and tangibility. In addition, the tax rate positively affects long-term debt ratio and total debt ratio. Furthermore, they find a negative relationship between leverage and firm growth opportunities.

Buferna et al. (2005) provided further evidence of the capital structure theories pertaining to a developing country and examined the impact of lack of a secondary capital market by analyzing a capital structure question with reference to the Libyan business environment. They developed four explanatory variables that represent profitability, growth, tangibility and size to test which capital structure theories best explained Libyan companies' capital structure. The results of cross-sectional OLS regression showed that

both the static trade-off theory and the agency cost theory are pertinent theories to the Libyan companies' capital structure whereas there was little evidence to support the asymmetric information theory. The lack of a secondary market may have an impact on agency costs, as shareholders who are unable to offload their shares might exert pressure on management to act in their best interests.

A study made by Amidu (2007) examined the determinants of capital structure of Ghanaian banks by employing panel regression model. Amidu (2007) has highlighted the importance of distinguishing between long and short forms of debt while he made inferences about capital structure. Amidu (2007) specifically tested the significance of bank size, profitability, corporate tax, growth, asset structure, and risk in determining bank capital structure. The result showed that short-term debt of banks is negatively related to banks profitability, risk, and asset structure and positively related to bank size, growth and corporate tax. On the other hand, the long-term debt of the banks is positively related to banks' asset structure and profitability and inversely related to bank risk, growth, size and corporate tax. Generally, the variables examined were consistent with the static trade-off and pecking order arguments, with the only exception being risk.

Gropp and Heider (2009) approached the issue from a different perspective. Using a sample of banks from developed countries, they specifically tested the significance of size, profitability, market-to-book ratio, asset tangibility, and dividend paying status in determining bank leverage. In the process, they made a stark distinction between bank book and market leverage as well as controlled for asset risk and macroeconomic factors.

They further examined whether asset risk captures the effect of risk adjustments on the minimum capital required or it rather represents factors pertaining to the standard capital structure theories. Overall, their results provided strong support for the relevance of standard determinants of capital structure on bank capital.

Caglayan and Sak (2010) studied the determinants of capital structure of banks in Turkish. The objective of the study was to examine the relationship between the leverage level and a set of explanatory variables (Tangibility, Size, Profitability, and Market to book ratio) by using panel data analysis to establish the determinants of capital structure of bank over the period 1992-2007. The main results of their study reveal that size and market to book have positive and statistically significant impact on the book leverage while the variables of tangibility and profitability have negative and significant impacts on the book leverage. These findings strongly confirm the pecking order theory; except the relationship with tangibility which weakly confirms the agency cost theory

Khrawish and Khraiwesh(2010) examined the determinants of capital structure; evidence from Jordanian industrials companies over the period (2001- 2005). Using panel data, Leverage ratio, Long-term debts/total Debts and five explanatory variables that represent size, tangibility, profitability, long-term debt and short-term debt were calculated. Based on the statistical analysis, they found that there was a significant positive relationship between leverage ratio and size, tangibility, long-term debt and short-term debt and there was a significant negative relationship between leverage ratio and Profitability of the firm.

Ahmed et al., (2010) investigated the impact of firm level characteristics on capital structure of life insurance companies of Pakistan over the period of seven year from 2001 to 2007. For this purpose, leverage was taken as dependent variable while profitability, size, growth, age, risk, tangibility of assets and liquidity were selected as independent variables. The result of OLS regression model indicated that profitability, liquidity, risk and age have negative relationship with leverage which follows pecking order theory while size indicated positive relationship with leverage which shows consistency with trade- off theory. The results also indicated that leverage has statistically insignificant relationship with growth and tangibility of assets.

Gurcharan (2010) analyzed the determinants of capital structure in four countries of the ASEAN members, namely Malaysia, Indonesia, Philippine and Thailand, for the period from 2003 to 2007 with a sample of 155 main listed companies from four selected ASEAN stock exchange index-links. Based on the empirical result, he found that profitability and growth opportunities for all selected ASEAN countries reveal statistical significant with inverse relationship with leverage. Whereas non-debt tax shield has significant negative impact on leverage mainly for Malaysia index link companies only. Firm size shows a positive significant relationship for Indonesia and Philippine index link companies. Also he found that country-effect factors; stock market capitalization and GDP growth rate show significant relationship with leverage while bank size and inflation indicate insignificant impacts on leverage.

Recently, Najjar and Petrov (2011) studied capital Structure of insurance companies in Bahrain. The goal of the study was to investigate the effect of specific firm characteristics on capital structure. They used panel data derived from annual reports and financial statements of five insurance companies listed on the Bahrain Stock Exchange for the period of 2005-2009 and apply multiple linear regression analysis using SPSS to identify those effects. Najjar and Petrov identified a strong relationship between firm characteristics, such as tangibility of assets, profitability, firm size, revenue growth, and liquidity. The results of their study reveal that tangibility and size shows a positive significant relationship with the debt ratio which confirms the static trade off theory while liquidity shows negative significant relationship with debt ratio which confirms the pecking order theory. But, profitability and revenue growth are not statistically significant and require further research.

More recently, the paper of Olayinka (2011) examined the determinants of capital structure of 66 firms listed on the Nigerian stock Exchange during the period 1999-2007 using panel data. He used six independent variables namely; sales growth, tangibility, profitability, liquidity, size and business environment and leverage as dependent variable. The OLS results showed that there is a negative relationship between leverage and growth opportunities which is consistent with the prediction of the trade off theory. In the same way, leverage is negatively related with tangibility and profitability which is consistent with the predictions of pecking order theory but positively related to liquidity as well as size which is consistent with trade-off theory. In general as per Olayinka, three of the variables are not significant determinants of capital structure.

In the case of Ethiopia, there have been a few studies on determinants of capital structure. These studies include Ashenafi (2005), Amanuel (2011) and Bayeh (2011). Ashenafi (2005) approached the question of capital structure using data from medium firms in Ethiopia. Ashenafi (2005) took variables like non-debt tax shield, economic risk, age of firms, size of firms, tangibility, profitability and growth were regressed against leverage. The results showed that non-debt tax shield, economic risk, profitability, growth, tangibility, and age showed a negative coefficient of correlation with debt to equity ratio.

Amanuel (2011) studied determinants of capital structure of manufacturing share companies in Addis Ababa, Ethiopia for the period over 2003-2010. The objective of the study was to examine the relevance of theoretical internal (firm level) factors determine capital structure of manufacturing share companies in Addis Ababa, Ethiopia. Amanuel (2010) used seven explanatory variables: tangibility, non-tax shield, growth, earning volatility, profitability, age and size, and three dependent variables: total debt ratio, short term ratio and long term ratio to establish the determinants of capital structure of manufacturing companies in Ethiopia. In connection to this, samples of 12 companies were taken and secondary data was collected from audited financial statement of the selected companies. The results of OLS regression showed that tangibility, non debt tax shields, earning volatility, profitability, and size of the firm variables are the significant determinants of capital structure of Addis Ababa manufacturing share companies at least for one of the model out of the three models employed in the study. But no clear and statistical proved relations were obtained for the variables growth of the firm and age of the firm in any of the capital structure models.

Bayeh (2011) investigated empirically the determinants of capital structure in the case of insurance industry in Ethiopia. In connection to this, nine insurance companies were included in the sample for the period over 2004 - 2010. Bayeh (2011) also used seven explanatory variables: liquidity, tangibility, growth, business risk, profitability, age and size, and three dependent variables: total debt to equity ratio, total debt ratio and long term ratio to test the determinants of capital structure of insurance companies in Ethiopia. The OLS result showed that growth, profitability, and age of the firm were found to have significant influence on capital structure of Ethiopian insurance companies. However, tangibility and size of the firm were found to have significant influence on capital structure of Ethiopian insurance companies.

2.3. Conclusion and knowledge gap

This chapter reviewed the literature on determinants of capital structure decision, starting with the famous irrelevance theory of Modigliani and Miller (1958). However, by relaxing the theory of Modigliani and Miller's (1958) assumptions of perfect capital markets, several theoretical frameworks have been developed to explain the firm's capital structure such as static trade-off theory, pecking order theory, and agency theory.

Static trade off-theory assumes that a firm's optimal debt ratio is determined by a trade-off between the bankruptcy cost and tax advantage of borrowing, holding the firm's assets and investment plans constant. Whereas, pecking order theory is another dimension of the capital structure theories. According to this theory capital structure is driven by firm's desire to finance new investments, first internally, then with low-risk

debt, and finally if all fails with equity. Therefore, the firms prefer internal financing to external financing.

Agency theory focuses on the costs which are created due to conflicts of interest between shareholders, managers and debt holders. According to this theory capital structures are determined by agency costs, which includes the costs for both debt and equity issue. This shows that theories of capital structure have been resulting in different conclusions.

Similarly, the findings of prior empirical studies have provided varying evidence related to the determinants of capital structure. For instance, Caglayan and Sak (2010) have studied the determinants of capital structure of banks in Turkish and provided evidence that pecking order theory is pertinent theory to Turkish banks. Beside, Buferna et al. (2005) provided evidence that trade of theory and agency are pertinent theories of the capital structure to a developing country. On the other hand, Amidu (2007) on Ghanaian banks supports the static trade-off and pecking order argument. However, in the context of Ethiopia as to the knowledge of the researcher there is no study conducted on the capital structure of the banking industry. In addition, most empirical work on capital structure has predominantly relied on quantitative analysis of secondary data to examine the determinants of capital structure. Therefore, this study will fill the gap by examining the determinants of capital structure in the context of Ethiopian banking industry.

Chapter Three: Research Design and methodology

The preceding chapter tried to present the literature review along with the knowledge gap that this study will be filling in. The purpose of this chapter is to discuss the research methodology along with the detailed methods planned to be used in the study. The chapter is organized in four sections. The first section 3.1 presents the research objective, research questions and hypotheses; this is followed by the research approaches in section 3.2. Section 3.3 presents the methods adopted including the data collection tools and methods of data analysis. Finally, conclusions and the relation between research questions/ hypotheses, and the different data sources are presented in section 3.4.

3.1. Objective, Hypotheses and research questions

As shown in chapter one this study intended to examine the relationship between leverage and bank specific (profitability, tangibility, growth, risk, size and liquidity) determinants of capital structure decision and to understand about theories of capital structure that can explain the capital structure of banks in Ethiopian. In order to achieve the objective of the study, six hypotheses (HP) and two research questions (RQ) were developed as shown below.

***HP 1**: There is a negative relationship between leverage ratios and profitability.*

***HP 2**: There is a positive relationship between leverage ratios and growth.*

***HP 3**: There is a positive relationship between leverage ratios and tangibility.*

***HP 4:** There is a negative relationship between leverage ratios and risk.*

***HP 5**: There is a positive relationship between leverage ratios and size.*

***HP 6**: There is a negative relationship between leverage ratios and liquidity.*

In addition, the following two research questions were developed.

***RQ1.** What determine the capital structure of banks in Ethiopia?*

***RQ2.** Which theory explians the financing behavior adopted by Ethiopian banking industry?*

3.2. Research Approaches

As noted in Creswell (2009) in terms of investigative study there are three familiar types of research approaches to business and social research namely, quantitative, qualitative and mixed methods approach. Therefore, the following discussion briefly presents the basic nature of quantitative, qualitative and mixed research approaches along with their respective merits and demerits.

Quantitative research is a means for testing objective theories by examining the relationship among variables (Creswell 2009, p.4). In quantitative research approach there are two strategies of inquiries namely, survey design and experimental design. The chief advantage of this approach is that numbers are easy to work with, data are readily collected, coded, summarized and analyzed (Dunn 1999, p. 37). Further quantitative research approach has the advantage of being able to make generalizations, for a broader population, based on findings from the sample. Apart from of its advantages, as noted by Dunn (1999) quantitative research approach has the following disadvantages. For example, the sample selected may not represent the total population and the researchers

know much about the collective or average experience of research participants, but not their individual experiences (Dunn 1999).

Qualitative research approach is one in which the investigator often makes knowledge claims based primarily on the multiple meanings of individual experiences, socially and historically constructed meanings, participation in issues, collaboration or change oriented with an intent of developing a theory or pattern (Creswell 2003, p. 18). As noted in Sarantakos (2005, p. 45 cited in Yesegat 2009, p. 73) qualitative research approach uses strategies of inquiry such as narratives, ethnographies, grounded theory studies, or case studies. The key advantage of qualitative research design is that it discloses the richness of human experience (Lincoln and Guba 1985, cited in Dunn, 1999, p.37). Moreover, qualitative research design has advantages like flexibility and emergent without being constrained by standardized procedures (Liamputtong and Ezzy 2005, p. 204, cited in Yesegat 2009, p. 74). A part from the above mentioned advantages, qualitative research design has also its own weaknesses. As noted in Dunn (1999) the demerits of this approach includes; absence of quick response, difficulty, inefficiently, and lack of generalization among others.

Mixed research is an approach to inquiry that combines or associates both qualitative and quantitative forms (Creswell, 2009). As a major advantage, when the investigator uses this approach he can learn more about the research problem (Leedy and Ormorod, 2005 cited in Semu 2010, p. 44). In connection to this, Greene et al. (1989, p. 256, cited in yesegat, 2009, p. 75) also emphasized that as all methods have inherent biases and limitations, so use of only one method to assess a given phenomenon will inevitably yield biased and limited results. Besides, as an additional merit, the approach is not limited to

one method or the researcher is not committed to only one method which means the investigator is flexible. Considering the research problem and objective along with the philosophy of the different research approaches, mixed research approach was found to be appropriate for this study. The following section hence presents the methods adopted in the study.

3.3. Methods adopted

Research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis (Creswell 2009, p. 3). Therefore, in order to achieve the objective stated in the preceding section, considering the nature of the problem and the research perspective this study used mixed research approach. Accordingly, the quantitative method was mainly used to investigate determinants of capital structure of banks in Ethiopia, and the financial data were collected through structured survey of documents. Following this, the qualitative method was used to support the quantitative findings and to gain additional insight into the factors that may affect the capital structure of banks in Ethiopia. The qualitative data were collected through in-depth interviews with the finance managers of Ethiopian commercial banks.

A mixed methods approach was chosen as it increases the likelihood that the research generates more accurate results than is the case if a single method had been adopted. As noted in Creswell (2009) mixed research is an approach that combines or associates both qualitative and quantitative research methods. It is also more than simply collecting and analyzing both kinds of data, it involves the use of both approaches in tandem so that the

overall strength of a study is greater than either qualitative or quantitative research. As a result, mixed methods provide a more accurate picture of the phenomena being investigated. The subsequent discussions provide the quantitative aspect of the study, the qualitative aspect, in-depth interviews in particular, and data analysis methods. .

3.3.1. Quantitative aspect of the study

The quantitative aspect of the research method intends to obtain data needed to generalize about the determinants of capital structure of banks in Ethiopia. Specifically, the current study employed a survey design that was administered through structured review of documents. Hence, the next section presents the survey design.

3.3.1.1. Survey design: structured review of documents

The purpose of survey research is to generalize or makes claim from the sample to the population so that inferences can be made about some characteristic, attitude or behavior of the population (Creswell 2009). In connection to this, Leedy and Ormord (2005, p.183 cited in semu. 2010, p. 45) also noted that survey research involves acquiring information about one or more group of people perhaps about their characteristics, opinions, attitudes, or previous experiences-by asking them questions and tabulating their answers. Generally, the ultimate goal is to learn about a large population by surveying a sample of that population.

The researcher selected survey design because surveys are relatively inexpensive and it enables to gather enough information, which may not available from other sources. Accordingly, the survey was carried out by means of a document review. The data related to a documentary analysis which is necessary to undertake this study were gathered from

the financial statements of eight banks and NBE for twelve consecutive years (2000-2011), and the data was the audited financial statements particularly balance sheet and income statement. This was done to avoid the risk of distortion in the quality of data.

Sampling design

The population of the study was all commercial banks registered by NBE. Currently, as per NBE (2009/10) annual report 15 banks are operating in Ethiopia. For this study, twelve years data (2000- 2011) were considered. Therefore, those Banks which were established after 2001 and started to provide financial statement in the succeeding fiscal year were not included in this study because this study incorporated only banks that have financial statements for the year, 2000, and onwards. Therefore, only eight banks information were used in this study to examine the determinants of capital structure.

3.3.2. Qualitative aspect of the study

Qualitative research approach is a means for exploring and understanding individuals or groups scribe to a social or human problem (Creswell, 2009). Qualitative research is typically used to answer questions of complex phenomena on which data can be collected using instruments like structured and unstructured interviews, group discussions, observation and reflection field notes, various texts like reflexive Journals, pictures, and analysis of documents and literature. Thus, in the current study to gather the qualitative data needed for addressing the research questions stated in the preceding section, in-depth interviews with finance managers of some selected banks were employed. The next section presents the in-depth interviews.

3.3.2.1. In – depth interview

In-depth interviews with some selected Ethiopian commercial banks finance managers were utilized to gain a greater insight into the findings from documentary analysis. The interviews were conducted with five finance managers of Ethiopian commercial banks namely, Construction and Business Bank, Commercial Bank of Ethiopia, United bank, Bank of Abyssinia and Wegagen bank. The finance managers were chosen as they are believed to be the most knowledgeable parties about the determinants of capital structure. Beside, the respondents were contacted once and each respondent was contacted at different times. This allowed the interview time to be utilized effectively and improved the efficiency of the interview process by helping the interviewees' to save time. Generally, based on the objective and research questions presented in the preceding section a number of unstructured interview questions were asked to better understand the determinants of capital structure.

3.3.3. Data analysis method

Survey data collected through document review was analyzed statistically using both descriptive and inferential statistics. Descriptive statistics of the variables and different percentiles of the dependent variable were calculated over the sample period. In addition, Correlation matrix was used to identify the relationship of each variable among them and with dependent variable. Then, using statistical package 'EVIEW 6' OLS (ordinary least squares) multiple regressions and t-statistic were carried out to test the relationship between leverage and their potential determinants. Multiple regressions were also used to determine the most significant and influential explanatory variables affecting the capital

structure of banks in Ethiopia. In connection to this, the general model for this study, as is mostly found in the existing literature is represented by;

$$Y_{i,t} = \alpha + \beta X_{i,t} + \varepsilon_{i,t}$$

The subscript i representing the cross-sectional dimension and t denote the time-series dimension. The left-hand variable$Y_{i,t}$, represents the dependent variable in the model, which is the firm's debt ratios. $X_{i,t}$ Contains the set of independent variables in the estimation model, is taken to be constant overtime t and specific to the individual cross-sectional unit i. If α is taken to be the same across units, then OLS provides a consistent and efficient estimate of α and β.

Therefore, the model for this study, was based on the one used by Amidu (2007) with some modification to explain the relationships between leverage and determinants of capital structure as shown below.

$$LEV_{i,t} = \beta_0 + \beta_1(PR_{i,t}) + \beta_2(TA_{i,t}) + \beta_3(GR_{i,t}) + \beta_4(RS_{i,t}) + \beta_5(SZ_{i,t}) + \beta_6(LQ) + \square$$

Where:

PR = profitability

TA = tangibility

GR = growth

RS = risk

SZ = size

LQ = liquidity

Table 3.1: Variable-Indicator List

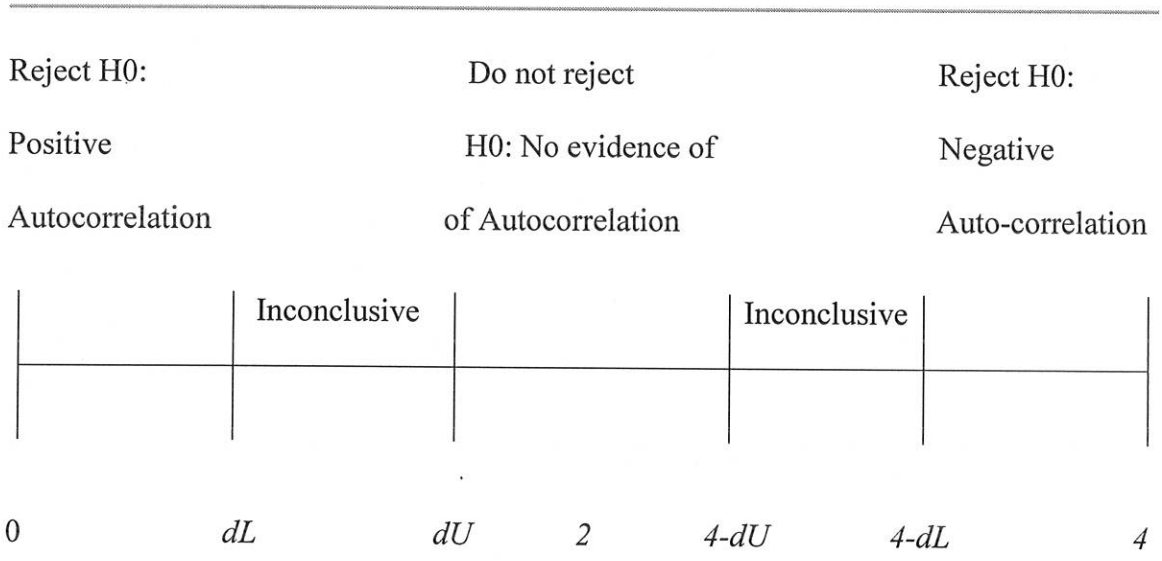
Variables	Indicator	Expected sign
Dependent Variable		
Leverage	Total debt/total asset	NA
Independent Variables		
Profitability	Ratio of EBIT to total asset	-
Tangibility	Fixed Assets / Total Asset	+
Growth	Annual change in total asset	+
Risk	Standard Deviation of Operating Income	-
Size	Natural Logarithm of Total Asset	+
Liquidity	Liquid assets/ deposits	-

As noted in Brooks (2008) the model should follow the classical linear regression model (CLRM) assumptions, which were required to show that the estimation technique, OLS, had a number of desirable properties, and also so that hypothesis tests regarding the coefficient estimates could validly be conducted. In doing so, different test of the CLRM assumptions were made. Among them the major ones are: test for heteroscedasticity, autocorrelation, multicollinearity and normality. Accordingly, to perform a heteroscedasticity test the popular white test was used. In this test, if the p-value is very small, less than 0.05 the null hypothesis of the variance of the residuals is homogenous must be rejected. As noted in brooks (2008) this test is the most popular because it makes few assumptions about the likely form of the heteroscedasticity. Gujarati (2004) indicates that Heteroskedasticity is a systematic pattern in the errors where the variances of the errors are not constant. Similarly, Brooks (2008) noted that if the errors do not have a constant variance, they are said to be heteroscedastic.

On the other hand, multicollinearity means that there is linear relationship between explanatory variables which may cause the regression model biased (Gujarati, 2004). When there is strong correlation between variables it becomes difficult to identify the impact of individual independent variables. Thus, in order to examine the possible degree of multicollinearity among the explanatory variables, correlation matrixes of the selected explanatory variables was used. Usually the multicollinearity exists if the correlation between two independent variables is more than 0.75 (Malhotra, 2007).

Beside, the researcher tested assumption of no serial correlation of the residuals. This assumption implies that the errors associated with one observation are not correlated with the errors of any other observation. For this purpose, Durbin-Watson (DW) measure was used. According to Brooks (2008), DW has 2 critical values: an upper critical value and a lower critical value, and there is also an intermediate region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected. The rejection, non-rejection, and inconclusive regions are shown on the number line in figure 3.1. So, the null hypothesis is rejected and the existence of positive autocorrelation presumed if DW is less than the lower critical value; the null hypothesis is rejected and an existence of negative autocorrelation is presumed if DW is greater than 4 minus the lower critical value; the null hypothesis is not rejected and no significant residual autocorrelation is presumed if DW is between the upper critical value and 4 minus the upper limits; the null hypothesis is neither rejected nor not rejected if DW is between the lower and the upper limits, and between 4 minus the upper and 4 minus the lower limits.

Figure: 3.1: Rejection and Non-Rejection Regions for DW Test



In addition, it's important that the residuals from the regression models should follow the normal distribution. Normality assumption of the regression model was tested with the Jarque- Bera measure. If the Jarque Bera value is greater than 0.05, the hypothesis of the normality must be fail to rejected (Brooks, 2008). Finally, Hausman specification test was used to test the fixed effects model against the random effects model.

3.4. Conclusion and relation between research questions/ hypotheses and data sources

This chapter presented the research questions / hypotheses, and the method adopted to address them. It also explains the quantitative, qualitative and mixed research approach with the method adopted for this study. In connection to this, based on the underlying principles of research methods and the research problem mixed methods approach has been chosen as appropriate to this research. Beside, this chapter puts forward the

necessary information about the sampling design and the data collection instrument. Finally, the analysis techniques used in this study were presented.

The relationship between research questions and hypotheses on the one hand and different data sources on the other hand are summarized in table 3.2.

Table: 3.2 Relationships between research question, hypotheses and different data source

Research questions and hypotheses	Data sources
RQ1. *What determine the capital structure of banks in Ethiopia?*	In-depth unstructured interview
RQ2. *Which theory explians the financing behavior adopted by Ethiopian banking industry?*	Data from Financial Statements of banks: balance sheet and income statement
HP 1*: There is a negative relationship between leverage ratios and profitability.*	Data from Financial Statements of banks: balance sheet and income statement
HP 2*: There is a positive relationship between leverage ratios and growth.*	Data from Financial Statements of banks: balance sheet and income statement
HP 3*: There is a positive relationship between leverage ratios and tangibility.*	Data from Financial Statements of banks: balance sheet and income statement
HP 4: *There is a negative relationship between leverage ratios and risk.*	Data from Financial Statements of banks: balance sheet and income statement
HP 5*: There is a positive relationship between leverage ratios and size.*	Data from Financial Statements of banks: balance sheet and income statement
HP 6*: There is a negative relationship between leverage ratios and liquidity*	Data from Financial Statements of banks: balance sheet and income statement

Chapter Four: Results and Analysis

The preceding chapters presented the orientation of the study, literature review and the research methodology adopted in the study. This chapter presents the research questions/ hypotheses, results and analysis of data from both documentary analysis and in depth interview with financial managers of selected commercial banks of Ethiopia. The chapter is organized into three sections. The first section 4.1 presents research hypotheses and questions as presented in the previous chapter. This is followed by the results of both documentary analyses (structured review of documents) and in-depth interview in section 4.2. Section 4.3 discusses the results of the study.

4.1. Research hypotheses and questions

As stated in the previous chapter this study intended to examine the relationship between leverage and firm specific (profitability, tangibility, growth, risk, size and liquidity) determinants of capital structure decision and to understand about theories of capital structure that can explain the capital structure of banks in Ethiopian.

In addition, as noted previously, in order to achieve this broad objective the study developed the following hypotheses and research questions.

***HP 1**: There is a negative relationship between leverage ratios and profitability.*

***HP 2**: There is a positive relationship between leverage ratios and growth.*

***HP 3**: There is a positive relationship between leverage ratios and tangibility.*

***HP 4:** There is a negative relationship between leverage ratios and risk.*

***HP 5**: There is a positive relationship between leverage ratios and size.*

***HP 6**: There is a negative relationship between leverage ratios and liquidity.*

The research questions were

***RQ1.** What determine the capital structure of banks in Ethiopia?*

***RQ2**. Which theory explians the financing behavior adopted by Ethiopian banking industry?*

4.2. Results

This section discusses the results of the different data sources. Accordingly, the results of the documentary analysis (structured reviews of documents) and in depth interviews were presented in the following subsections.

4.2.1. Documentary analysis (structured review of financial records)

Documentary analysis was mainly used for this study, to investigate the determinants of capital structure of banks in Ethiopia. To this end, the data related to banks which were necessary to undertake the study was gathered from the financial statements of eight banks and NBE for twelve consecutive years (2000-2011). Balance sheet and income statement were predominantly used to analyze the determinants of capital structure of Ethiopian banks.

Based on the above data source, the following discussions present the results of the documentary analysis. Accordingly, the result of descriptive statistics, correlation

analysis, the test of CLRM assumption and result of the regression analysis are presented in the following sub-sections.

4.2.1.1. Descriptive statistics

The study examined the determinants of capital structure for eight banks over the time period from 2000-2011. The descriptive statistics of the dependent and explanatory variables for the sample banks were summarized in table 4.1. The total observation for the each dependent and explanatory variable was 96. Moreover, the table also shows the mean, standard deviation, minimum, median and maximum values for the dependent and independent variables.

The mean leverage (total debt to total asset) of banks was 88.9 percent with the standard deviation of 3.5 percent. This means that more than 88.9 percent of the banks in Ethiopia were financed by debts. This highlights that debt ratio was high in this study. Leverage for the sample period was ranged from 80 percent to 96 percent with a standard deviation of 4 percent.

Profitable firms are stronger to face financial distress and stronger to continue more than unprofitable firms in the future. Profitability, given as the ratio of pre-tax profits plus interest expense to total assets, registered a mean value of 5.03 percent indicating a return on assets of 5.03 percent, and median of 5.2 percent with a standard deviation of 1.2 percent and profitability for the sample was ranged from 1.04 percent to 7.02 percent. This shows the existence of great variation in profit among banks in Ethiopia. Growth was measured as the annual percentage change in total asset and this shows a mean of 25.8 percent. This indicates that, on average, growth rate was 25.8 percent during the

twelve - year period and growth in total asset for the sample period were ranged from -94.8 percent to 88.1 percent with standard deviation of 24.4 percent. This indicates the existence of high variation in growth rate among banks in Ethiopia. Tangibility, measured by fixed asset to total asset shows that on average, 1.7 percent of the firms' assets were fixed. The fixed assets to total asset for the sample were ranged from 0.55 percent to 6.6 percent with standard deviation of 1.06 percent. Concerning, the firms risk which was presented by the standard deviation of operating income (volatility of earning). The mean of this variable was 0.66 percent and the median was 0.49 percent with a standard deviation of 0.65. Firms vary in adopting risk; for the study sample, risk was ranged between 0.000 to 3.3 percent.

Table 4.1: Summary of descriptive statistics for dependent and explanatory variable

variables	observation	mean	SD	minimum	median	maximum
Lev	96	0.89	0.04	0.80	0.89	0.96
Pr	96	0.05	0.01	0.01	0.05	0.07
Gro	96	0.26	0.24	-0.95	0.26	0.88
Tang	96	0.02	0.01	0.01	0.01	0.07
Risk	96	0.01	0.01	0.00	0.01	0.03
Size	96	21.79	1.36	18.78	21.68	25.46
Lq	96	0.51	0.14	0.27	0.51	1.16

Note: *LEV refers to total leverage. Profitability (Pr), growth (Gro), tangibility (Tang), risk (Risk), Size (SIZE) and liquidity (Lq).*
Source: Structured review of financial statements and own computations

The mean of the firms' size which was represented by the natural logarithm of total assets was 21.79 and median was 21.68 with a standard deviation of 1.36. Natural logarithms of total assets for the sample were ranged from 18.78 to 25.46. Besides, summary of test statistic shows that the mean of liquidity was 50.6 percent and the median of 50.6 percent with the standard deviation of 14.4 percent. This reveals as there was high variation in

liquidity among Ethiopian banks. Beside, for the study sample liquidity was ranged in between 27.3 percent to 111.5 percent.

4.2.1.2. Correlation analysis

Table 4.2, shows the correlation between the explanatory variable and leverage in this study. As noted in Brooks (2008), Correlation between two variables measures the degree of linear association between them. To find the association of the independent variables with the leverage, Pearson product moment of correlation coefficient was used. Values of the correlation coefficient are always ranged between positive one and negative one. A correlation coefficient of positive one indicates that a perfect positive association between the two variables; while a correlation coefficient of negative one indicates that a perfect negative association between the two variables. A correlation coefficient of zero, on the other hand, indicates that there is no linear relationship between the two variables.

The correlation matrix in Table 4.2 shows that leverage (dependent variable) was negatively correlated with profitability, growth, tangibility, risk and liquidity of the firm. Which indicates that firm with higher leverage have less profitability, growth, tangibility, risk and liquidity. However, only size have positive correlation with leverage. The result also shows that leverage was correlated at -0.35 with profitability and had statistically significant correlation. Similarly, leverage was correlated at 0.56 with size and had statistically significant correlation. Besides, leverage was correlated at -0.14, -0.02, -0.19, 0.11 with growth, tangibility, liquidity, and risk respectively and had statistically insignificant correlation.

Table 4.2: Correlation (Pearson) matrix

	LEV	PR	GRO	TANG	RISK	SIZE	LQ
LEV	1.00						
PR	-0.35	1.00					
GRO	-0.14	0.13	1.00				
TANG	-0.02	-0.14	-0.05	1.00			
RISK	-0.11	-0.31	-0.43	0.00	1.00		
SIZE	0.56	0.13	-0.03	-0.43	-0.29	1.00	
LQ	-0.19	-0.10	-0.20	-0.18	0.10	0.10	1.00

Source: Structured review of financial statements and own computations

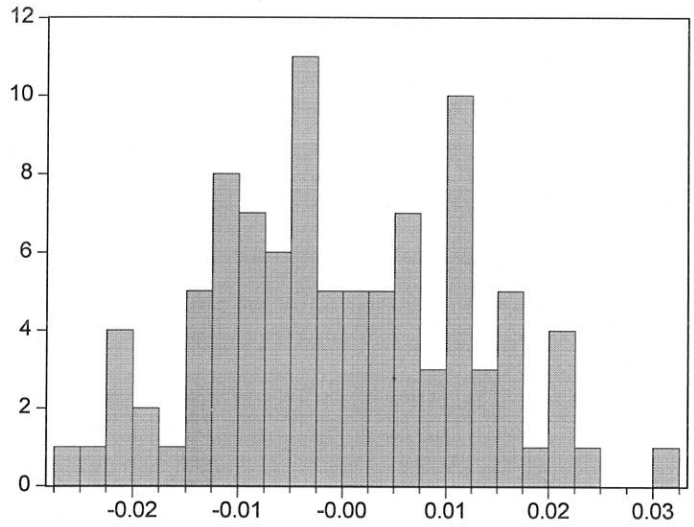
4.2.1.3. Tests for the Classical Linear Regression Model (CLRM) Assumptions

Different tests were run to make the data ready for analysis and to get reliable output from the research. These tests were intended to check whether the CLRM assumptions, i.e. the OLS assumptions, are fulfilled when the explanatory variables are regressed against the dependent variables. Accordingly, the following sub-section presents tests of CLRM.

Test of Normality

The normality tests for this study as shown in figure 4.1 the kurtosis is close to 3, and the Bera-Jarque statistic has a P-value of 0.412 which was greater than 0.05 implying that the data were consistent with a normal distribution assumption.

Figure 4.1: Normality test



Series: Standardized Residuals
Sample 2000 2011
Observations 96

Mean	-7.77e-19
Median	-0.002062
Maximum	0.031852
Minimum	-0.025995
Std. Dev.	0.012367
Skewness	0.130488
Kurtosis	2.388094
Jarque-Bera	1.770151
Probability	0.412683

Source: Structured review of financial statements and own computations

Test of multicollinearity

In order to examine the possible degree of multicollinearity among the explanatory variables, correlation matrixes of the selected explanatory variables were presented in table 4.3. Usually the multicollinearity exists if the correlation between two independent variables is more than 0.75 (Malhotra, 2007). As it appears in the correlation matrix table 4.3, there were no such high correlation between the explanatory variables. Thus, there is no problem of multicollinearity for this study.

Table 4.3: Correlation matrix between explanatory variables

	PR	GRO	TANG	RISK	SIZE	LQ
PR	1.00					
GRO	0.13	1.00				
TANG	-0.14	-0.05	1.00			
RISK	-0.31	-0.43	0.00	1.00		
SIZE	0.13	-0.03	-0.43	-0.29	1.00	
LQ	0.10	-0.20	-0.18	0.09	0.10	1.00

Source: Structured review of financial statements and own computations

Test of Heteroscedasticity

Table 4.4 presents three different types of tests for heteroscedasticity and then the auxiliary regression in the first results table displayed. The test statistics give us the information we need to determine whether the assumption of homoscedasticity is valid or not, but seeing the actual auxiliary regression in the second table can provide useful additional information on the source of the heteroscedasticity if any is found. In this case, both the F- and $\chi 2$ versions of the test statistic give the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values are considerably in excess of 0.05. The third version of the test statistic, 'Scaled explained SS', which as the name suggests is based on a normalized version of the explained sum of squares from the auxiliary regression, similarly suggests in this case that there is no evidence of heteroscedasticity problem.

Table 4.4: Heteroscedasticity Test: White test

F-statistic	0.834728	Prob. F(27,68)	0.6930
Obs*R-squared	23.89741	Prob. Chi-Square(27)	0.6360
Scaled explained SS	17.64855	Prob. Chi-Square(27)	0.9139

Source: structured review of financial statements and own computations

Test for Assumption of Autocorrelation

As noted in Brooks (2008) this is an assumption that the covariance between the error terms over time (or cross-section ally, for that type of data) is zero. In other words, it is

assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are 'auto correlated' or that they are serially correlated.

Table 4.6 presents the Durbin-Watson test value for the autocorrelation of residual which is 1.41. The relevant critical values for the test are dL= 1.40, dU = 1.66, and 4 - dU = 4-1.66=2.34; 4 - dL = 4-1.40=2.30. Accordingly, Durbin-Watson test value is clearly between the lower limit (dL) which is 1.40 and the upper limit which is 1.66 and thus the null hypothesis is neither rejected nor not rejected.

Random Effect versus Fixed Effect Models

Table 4.5, presents the Hausman specification test which suggests the fixed effects model was better than random effects model as the p-value (0.00), is less than 0.05 for dependent variables which imply that the random effects model should be rejected and thus, the analysis is based on the fixed effects estimates.

Table 4.5: Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	168.899377	6	0.0000

Source: structured review of financial statements and own computations

4.2.4. Results of Regression analysis

As shown in chapter three, the model used to find out and explain the association between the dependent variable and the independent variables was:

$$LEV_{i,t}=\beta_0+\beta_1(PR_{i,t})+\beta_2(TA_{i,t})+\beta_3(GR_{i,t})+\beta_4(RS_{i,t})+\beta_5(SZ_{i,t})+\beta_6(LQ)+\square$$

Where:

LEV= leverage

PR = profitability

TA = tangibility

GR = growth

RS = risk

SZ = size

LQ = liquidity

This study used panel data models where the random effect and fixed effect models could be used to estimate the relationships among variables. An appropriate model for this analysis, testing random versus fixed effects models, was selected. To perform this comparison, the character of the individual effects was tested through the Hausman's specification test. According to Hausman test results shown in table 4.5, the fixed effects were found to be more appropriate for the model at the 1 percent level. Thus, the relationship between leverage and the explanatory variables were examined by the fixed effects model in this study. The result obtained by the fixed effect model is reported in Table 4.6.

Table 4.6: Fixed effect model estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.769041	0.046189	16.65004	0.0000***
PR	-1.208480	0.146528	-8.247453	0.0000***
GRO	-0.011816	0.007409	-1.594788	0.1146
TANG	-0.559071	0.235235	-2.376651	0.0198**
RISK	-0.140258	0.273598	-0.512643	0.6096
SIZE	0.010113	0.002151	4.702570	0.0000***
LQ	-0.049525	0.011398	-4.345242	0.0000***
R-squared	0.880471			
Adjusted R-squared	0.861521			
F-statistic	46.46359		Durbin-Watson stat	1.405285
Prob(F-statistic)	0.000000			

**, significant at 5 percent
***indicate significant at the 1%,
Source: structured review of financial statements and own computations

The fixed effect result in table 4.6 indicates that profitability was strongly statistically significant (p-value = 0.00) at 1 percent level and had negative relation with leverage ratio. Similarly, liquidity was strongly statistically significant (p-value = 0.00) at 1 percent level and had negative relation with leverage ratio. In the same way, size was statistically significant (p-value = 0.00) at 1 percent level and had positive relation with leverage ratio. Beside, the fixed effect table 4.6 reveals that tangibility was statistically

significant (p- value = 0.019) at 5 percent level and had negative relation with leverage ratio. But risk and growth do not have statistically significant relationship with leverage with a p-value of 0.6096 and 0.1149 respectively. Furthermore the table 4.6 shows that the adjusted R square is 0.86 which indicates that about 86 percent of the variability in leverage is explained by the selected firm-specific factors (Profitability, Tangibility, risk, Growth, liquidity, and Size).

4.2.2. In-depth interview results

In order to deeply understand how banks choose between different types of finance and its determinants unstructured interviews were utilized with some selected Ethiopian commercial banks finance managers. The interviews were conducted with five finance managers of Ethiopian commercial banks namely, Construction and Business Bank, Commercial Bank of Ethiopia, United bank, Bank of Abyssinia and Wegagen bank. The finance managers were chosen as they are believed to be the most knowledgeable parties about the determinants of capital structure. Beside, the interviews were conducted independently with the official. They were asked unstructured interview questions in relation to the financing of their company. These interview questions were designed to find out the main factors that determine the capital structure of banks, the source of finance that bank mainly use, factors responsible to make equity issue, factors responsible to determine appropriate amount of debt and the influence of change in size on the source of finance.

According to an interview with financial managers of the banks, the factors that can determine the capital structure of banks in Ethiopia were; profitability, size, liquidity,

ownership structure, maintaining a target debt-to equity ratio, technology, and government regulation. In addition to this the interviews result indicted that the main sources of finance for their company were deposit, retained earnings, and equity. Regarding factors responsible for making equity issue, the most important factor was to fund a major expansion.

As per the interview with the financial managers, profitability increases the level of leverage in Ethiopian banking industry. According, to the officials profitability increases the goodwill of the bank in the eyes of the public which will increases their deposit this means in other word profitability has a positive relationship with leverage ratio. Furthermore, the official's revealed banks with high liquidity ratios or more liquid assets prefer to utilize these assets to finance their investments and discourage to raise external funds. Thus, this indicates as liquidity has a negative relationship with leverage ratio. Regarding to the size of banks the officials suggests that as the size of the banks become large there levels of leverage ratio also become high which shows a positive relationship between size and leverage ratio.

4.3. Discussions of the Results

The preceding sections present the overall results of the study. Thus, this section discusses in detail the analyses of the results for each explanatory variable and their importance in determining leverage ratio. In addition, the discussions analyses the statistical findings of the study in relation to the previous empirical evidences. Hence, the following discussions present the relationship between explanatory variables and leverage ratio.

Profitability

The results of fixed effect model in table 4.6 indicated that profitability had a negative relationship with leverage, and statistically significant (p-value = 0.00) at 1% level. Thus, the result was in accordance with the expected sign. This implies that every one percent change (increase or decrease) in bank's profitability keeping the other thing constant has a resultant change of 121 percent on the leverage in the opposite direction. This result also shows that, higher profits increase the level of internal financing in Ethiopian banking industry. Beside, the result revealed the suggestions that profitable banks accumulate internal reserves and this enables them to depend less on external funds. Even though, profitable banks may have better access to external financing, the need for debt finance may possibly be lower, if new investments can be financed from accumulated reserves.

The result of this study is consistent with the pecking order theory that suggests profitable firms prefer internal financing to external financing. Beside, a negative relationship between profitability and leverage was observed in the majority of empirical studies

Rajan and zingales (1995), Amidu (2007), and Caglayan and Sak (2010) were some of them. However, Regardless of the above fact, the interview result revealed that profitability had a positive effect on the leverage ratio. This comment suggested that banks with higher profitability will have more leverage in their capital structure, which is in contrary to the above findings of the regression result. This is may be because of the increased goodwill that profitable banks have in the eyes of the public, which in turn resulted in an increased level of deposits for them.

Size

The result of fixed effect model table 4.6 indicated that Size had positive relationships with the leverage of banks, and statistically significant (p-value = 0.00) at 1% level. This implies that every one percent change (increase or decrease) in the banks size keeping the other thing constant had a resultant change of 1 percent on the leverage in the same direction. The results also suggested that the bigger the bank, the more external funds it will use. The possible reason is that, larger banks have lower variance of earnings, and the providers of the debt capital are more willing to lend to larger banks as they are perceived to have lower risk levels.

In addition, the results confirm the concept that large firms can borrow more easily, either because of a better reputation or because of a perceived lower risk due to better diversification. This is largely consistent with the Static Trade-off Theory and agency cost theory. Beside, many previous studies indicated a similarly strong significant positive relationship, for example Titman & Wessels, (1988), Rajan and Zingales, (1995), Booth et al., (2001), Amidu (2007), and Caglayan and Sak (2010) were some of them.

The findings from interviews data were also provide further support for the findings of the regression result which demonstrates a positive relationship between size and leverage. Therefore, based on this finding the relationship between size and leverage was in accordance with the expected sign.

Tangibility

The results of fixed effect model table 4.6 indicated that the relationship between tangibility and leverage was found to be negative and statistically significant (p-value = 0.019) at 5% level. Therefore, the result was not in accordance with the expected sign. The result also implies that every one percent change (increase or decrease) in the banks tangibility keeping the other thing constant had a resultant change of 55.9 percent on the leverage in the opposite direction. This significant negative relationship between tangibility and leverage contradicts with various previous research findings like Rajan and Zingales (1995), Amidu (2007), and Frank and Goyal (2009) which suggest that firm's borrowing capability depends upon collateralizable value of assets (tangibility) and with theories (Static trade-off theory and asymmetric theory) which stated the positive relation between leverage and tangibility.

The likely reason of this relationship might be that banking industry in Ethiopia had a close relationship with creditors, because the relationship can substitute for collateral. In contrary to the above findings of regression result, the findings from the interview result indicates tangibility was not a proper determinant of bank capital structure. As per the interviews with the finance managers of banks, one possible explanation for this was the use of ownership structure and reputation, in which fixed asset are not used as security.

Risk

Risk was considered to be one of the key factors that can affect the capital structure of banks in Ethiopia. Both theories i.e., static trade of theory and pecking order theory predict a negative relationship between risk and leverage ratio for at least two reasons: first, earnings volatility reduces investors ability to predict about future performance and earnings; second, the higher volatility lead to higher probability of default.

However, there was no support of risk influencing the level of leverage of banks in Ethiopia. The coefficient for risk on leverage was negative and statistically insignificant with the p-value of 0.61. Though, negative sign confirms that risky banks are expected to have less leverage ratio which was consistent with Pecking Order Theory and trade-off theory, but insignificant result indicates that risk was not considered as a proper explanatory variable of leverage in Ethiopian banking industry. This insignificant result was also consistent with the findings of Titman and Wessels (1988) and Amidu (2007). Similarly, the findings from interviews data were also provide further support for the findings of the regression result which demonstrates that risk was not a proper factor that determine the capital structure of banks in Ethiopia.

Liquidity

The results of fixed effect model table 4.6 indicated that liquidity had a negative relationship with leverage, and statistically significant (p-value = 0.00) at 1% level. Thus, the result was in accordance with the expected sign which state that there is negative relationship between leverage and liquidity. This negative sign shows the inverse relationship between the liquidity and leverage. In other word it implies that every one

percent change (increase or decrease) in the bank liquidity keeping the other thing constant had a resultant change of 4.9 percent on the leverage in the opposite direction.

The negative and statistically significant influence of liquidity in this study was consistent with a theoretical analysis of pecking order and agency cost theory, which state that high liquidity firms use internal resources instead of external to finance their projects. Therefore, this negative effect of Liquidity on leverage was also largely consistent with the empirical evidence of Deesomsak et al. (2004), Ahmed et al., (2010), and Najjar and Petrov (2011). In the same way, the interview with the finance manager of banks indicates banks with high liquidity ratios or more liquid assets were prefer to utilize these assets to finance their investments and discourage to raise external funds. Thus, the findings from interviews support the findings of the regression result which demonstrates a negative relationship between liquidity and leverage.

Growth

According to the trade-off theory, firms holding future growth opportunities, which are intangible assets, tend to borrow less than firms holding more tangible assets because growth opportunities cannot be collateralized Myers (1977). However, the pecking order theory of Myers and Majluf (1984) predicts that leverage and growth are positively related. For growing firms, internal funds may be insufficient to finance their positive investment opportunities and, hence, they are likely to be in need of external funds. According to the pecking order theory, if external funds are required, firms will prefer debt to equity because of lower information costs associated with debt issues. This results in a positive relationship between leverage and growth opportunities.

The result of fixed effects estimation model table 4.6 revealed that there was a negative and statistically insignificant relationship between leverage and growth of banks. The negative coefficient of growth indicates a negative relationship between growth and leverage. However, this negative relationship is found statistically insignificant with the p-value of 0.11. Though negative sign confirms that growing banks are expected to have less debt ratio which was consistent with trade of theory and previous empirical findings of Huang and Song (2005) and Olayinka (2011) the insignificant result indicates that growth was not considered as a proper explanatory variable of leverage in Ethiopian banking industry. This insignificant result was also consistent with the previous empirical findings of Titman and Wessels (1988), Ahmed et al., (2010) and Najjar and Petrov (2011).

The possible reason may be that the measure (percentage change in total asset) used in this study did not reflect the growth of banks fully. Other more significant results might be obtained by using another measure (market-to-book ratio) for growth which was difficult to use it for this study where there is no active secondary market. In the same way, the findings from interviews data were also provide further support for the findings of the regression result which demonstrates that growth was not a proper factor that determine the capital structure of banks in Ethiopia.

This chapter discussed the results of the documentary analysis and in depth interview results, and then presented the discussions of these results using the appropriate method. Accordingly, the chapter discussed the descriptive analysis, correlations between the

variables and through the regressions analyses; it illustrates how the independent variables influence the dependent variable. Thus, a discussion of the result indicates that profitability, tangibility, size and liquidity were statistically significant factors that determine the capital structure of banks in Ethiopia. However, discussions of the result indicate that risk and growth were not an important explanatory variable of leverage in Ethiopian banking industry. The next chapter presents conclusions and recommendations of the study.

Chapter Five: Conclusions and Recommendations

The preceding chapter presented the results and discussion, while this chapter deals with the conclusions and recommendations based on the findings of the study. Accordingly this chapter is organized into two sub-sections. Section 5.1 presents the conclusions and section 5.2 presents the recommendations.

5. 1. Conclusions

Since the seminal work of Modigliani and Miller (1958), the issue of capital structure has attracted intense debate in the field of financial management. The basic question is whether there exists an optimal capital structure and what might be its determinants. Extensive research has attempted to identify these factors; however, the findings of prior empirical studies have provided varying evidence related to the impact of these factors on capital structure. Furthermore, the majority of these studies have been conducted in developed countries that have many institutional similarities.

In light of the above, the main objective of this study was to examine the relationship between leverage and firm specific (profitability, tangibility, growth, risk, size and liquidity) determinants of capital structure decision, and to understand about theories of capital structure that can explain the capital structure of banks in Ethiopian. To achieve the intended objective the study used mixed methods by combining quantitative and qualitative approaches together. The quantitative data were collected through survey of document reviews from a sample of eight banks over the time period from 2000-2011. The collected data were analyzed by employing multivariate OLS model using statistical package 'EVIEW 6'. Beside, the qualitative data that were collected through in-depth

interviews was used to support the quantitative findings and to gain additional insight into the factors that may affect the capital structure of banks in Ethiopia.

In order to conduct the empirical analysis, one dependent variable (at book value), and six independent variables were selected from prominent previous research works on capital structure; namely profitability, growth, tangibility, risk, size, and liquidity. The results of the fixed effect estimation model showed the existence of the following relationship between leverage and six independent variables.

Profitability had statistically significant negative relationship with leverage, which was in line with prior expectation. This result also supports the pecking order theory and prefers using internal finance before raising debt or equity. Similarly, liquidity had a negative and statistically significant relationship with leverage, which was also in line the expected sign. A negative sign suggests that banks with high liquidity ratios or more liquid assets are prefer to utilize these assets to finance their investments and discourage to raise external funds. Moreover, the result for liquidity clearly supports the pecking order and agency theories.

Regarding to the effect of tangibility on the capital structure of banks in this study, the result shows that as there was negative and statistically significant relationship with leverage, which is in line with the extended form of pecking order theory. Beside, the results of study indicated that bank size had statistically significant positive relationship with leverage, which was consistent with trade- off theory and the expected sign. The result also implies that the bigger the bank, the more external funds it will use.

Surprisingly, Growth and risk had a negative relationship with leverage, and statistically insignificant. In addition to the findings of fixed effect regression results, interviews were undertaken with the finance managers of selected banks to better investigate the determinants of bank capital structure. Accordingly, the interview result also indicates bank size, profitability, and liquidity were the main factors that determine the capital structure of banks in Ethiopia.

In conclusion, the finding of the study suggests that profitability, liquidity, tangibility, and bank size were important variables that influence banks' capital structure. However, there were no support of banks' risk and growth influencing the level of leverage of banks in Ethiopia. The results also, confirms that pecking order theory was pertinent theory in Ethiopian banking industry, while there were little evidence to support static trade-off theory and the agency cost theory.

5.2. Recommendations

In light of the major finding obtained from the results, the following recommendations were made.

The analyses indicated that the variables of profitability, liquidity, size and tangibility were significantly related to leverage ratio. Therefore, banks should pay greater attention to these significant variables in determining their optimal capital structure.

The study also shows that, banks in Ethiopia mainly use debt as external source of finance. Thus, the managements of Banks should place greater emphasis on the facilitation of equity capital in order to obtain sufficient capital to expand their branch network which in turn creates greater market share for them.

This study examined only firm specific determinants of capital structure of banks in Ethiopia because of resource and time limitation. Thus, future researcher may address these deficiencies by including external variable like inflation, GDP, interest rate and ownership structure, in order to demonstrate the impact of both internal and external variables on the choice of capital structure.

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APPENDICES

Appendices

Appendix 1: Heteroskedasticity Test

Heteroskedasticity Test: White

F-statistic	0.834728	Prob. F(27,68)	0.6930
Obs*R-squared	23.89741	Prob. Chi-Square(27)	0.6360
Scaled explained SS	17.64855	Prob. Chi-Square(27)	0.9139

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/30/12 Time: 21:02
Sample: 1 96
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.014464	0.038861	-0.372211	0.7109
PR	0.167193	0.174600	0.957573	0.3417
PR^2	0.656611	0.572159	1.147602	0.2552
PR*GRO	-0.067153	0.045473	-1.476758	0.1444
PR*TANG	-0.681842	1.036846	-0.657612	0.5130
PR*RISK	0.394197	1.541361	0.255746	0.7989
PR*SIZE	-0.010222	0.007682	-1.330612	0.1878
PR*LQ	0.035405	0.057642	0.614223	0.5411
GRO	0.010952	0.012835	0.853263	0.3965
GRO^2	-0.001867	0.001557	-1.199028	0.2347
GRO*TANG	0.011950	0.050384	0.237180	0.8132
GRO*RISK	-0.064869	0.084754	-0.765380	0.4467
GRO*SIZE	-0.000266	0.000517	-0.513708	0.6091
GRO*LQ	-0.002168	0.003353	-0.646702	0.5200
TANG	0.143976	0.312727	0.460390	0.6467
TANG^2	-0.782922	0.830071	-0.943199	0.3489
TANG*RISK	2.956747	1.856435	1.592702	0.1159
TANG*SIZE	-0.003073	0.015120	-0.203265	0.8395
TANG*LQ	-0.091952	0.112477	-0.817514	0.4165
RISK	0.127655	0.516930	0.246948	0.8057
RISK^2	-0.632274	2.679930	-0.235929	0.8142
RISK*SIZE	-0.011830	0.022423	-0.527594	0.5995
RISK*LQ	0.181849	0.161638	1.125034	0.2645
SIZE	0.000762	0.003138	0.242772	0.8089
SIZE^2	-1.39E-06	6.40E-05	-0.021700	0.9828
SIZE*LQ	-0.000406	0.000632	-0.643220	0.5222
LQ	0.007850	0.016624	0.472229	0.6383
LQ^2	-0.000431	0.004007	-0.107499	0.9147

R-squared	0.248931	Mean dependent var	0.000463
Adjusted R-squared	-0.049287	S.D. dependent var	0.000610
S.E. of regression	0.000625	Akaike info criterion	-11.67845
Sum squared resid	2.66E-05	Schwarz criterion	-10.93052

Log likelihood	588.5658	Hannan-Quinn criter.	-11.37613
F-statistic	0.834728	Durbin-Watson stat	1.233597
Prob(F-statistic)	0.693024		

Appendix 2: Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	168.899377	6	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
PR	-1.208480	-1.320870	0.007422	0.1920
GRO	-0.011816	-0.022387	0.000013	0.0034
TANG	-0.559071	0.530236	0.033115	0.0000
RISK	-0.140258	-0.470665	0.006899	0.0001
SIZE	0.010113	0.018173	0.000003	0.0000
LQ	-0.049525	-0.072462	0.000032	0.0001

Cross-section random effects test equation:
Dependent Variable: LEV
Method: Panel Least Squares
Date: 05/30/12 Time: 20:45
Sample: 2000 2011
Periods included: 12
Cross-sections included: 8
Total panel (balanced) observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.769041	0.046189	16.65004	0.0000
PR	-1.208480	0.146528	-8.247453	0.0000
GRO	-0.011816	0.007409	-1.594788	0.1146
TANG	-0.559071	0.235235	-2.376651	0.0198
RISK	-0.140258	0.273598	-0.512643	0.6096
SIZE	0.010113	0.002151	4.702570	0.0000
LQ	-0.049525	0.011398	-4.345242	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.880471	Mean dependent var	0.889929
Adjusted R-squared	0.861521	S.D. dependent var	0.035771
S.E. of regression	0.013311	Akaike info criterion	-5.666360

Sum squared resid	0.014530	Schwarz criterion	-5.292393
Log likelihood	285.9853	Hannan-Quinn criter.	-5.515196
F-statistic	46.46359	Durbin-Watson stat	1.405285
Prob(F-statistic)	0.000000		

Appendix 3: Summary of raw data

YEAR	BANK	LEV	GRO	TANG	pr	risk	size	LQ
2000	CBE	0.935	0.137	0.012	0.051	0.011	23.710	0.440
2001	CBE	0.939	0.084	0.011	0.030	0.015	23.791	0.350
2002	CBE	0.963	0.031	0.010	0.041	0.008	23.821	0.430
2003	CBE	0.947	0.093	0.009	0.040	0.001	23.910	0.690
2004	CBE	0.947	0.156	0.008	0.027	0.009	24.055	0.740
2005	CBE	0.957	0.186	0.007	0.033	0.004	24.225	0.690
2006	CBE	0.958	0.081	0.006	0.040	0.006	24.303	0.750
2007	CBE	0.933	0.212	0.006	0.035	0.004	24.495	0.780
2008	CBE	0.940	0.160	0.006	0.048	0.009	24.644	0.470
2009	CBE	0.915	0.178	0.007	0.056	0.006	24.808	0.360
2010	CBE	0.955	0.249	0.008	0.048	0.006	25.030	0.290
2011	CBE	0.955	0.540	0.007	0.047	0.001	25.462	0.358
2000	DB	0.911	0.283	0.020	0.044	0.003	20.578	0.539
2001	DB	0.915	0.272	0.016	0.061	0.012	20.819	0.398
2002	DB	0.918	0.351	0.015	0.050	0.007	21.119	0.427
2003	DB	0.935	0.340	0.013	0.034	0.012	21.412	0.400
2004	DB	0.935	0.345	0.015	0.044	0.008	21.708	0.400
2005	DB	0.929	0.278	0.013	0.044	0.001	21.953	0.360
2006	DB	0.915	0.329	0.013	0.055	0.008	22.238	0.311
2007	DB	0.910	0.329	0.016	0.058	0.002	22.522	0.344
2008	DB	0.907	0.296	0.012	0.063	0.004	22.781	0.474
2009	DB	0.907	0.243	0.011	0.057	0.005	22.999	0.593
2010	DB	0.909	0.269	0.013	0.057	0.000	23.237	0.518
2011	DB	0.905	0.187	0.013	0.065	0.006	23.408	0.526
2000	AIB	0.876	0.416	0.030	0.057	0.003	20.448	0.465
2001	AIB	0.885	0.195	0.032	0.053	0.003	20.626	0.408
2002	AIB	0.882	0.226	0.034	0.043	0.007	20.829	0.433
2003	AIB	0.902	0.260	0.041	0.031	0.008	21.060	0.477
2004	AIB	0.912	0.263	0.042	0.037	0.004	21.294	0.508
2005	AIB	0.898	0.258	0.034	0.040	0.002	21.523	0.446
2006	AIB	0.897	0.327	0.030	0.054	0.010	21.806	0.362
2007	AIB	0.887	0.297	0.026	0.069	0.011	22.066	0.362
2008	AIB	0.876	0.258	0.027	0.064	0.004	22.296	0.477

2009	AIB	0.883	0.333	0.023	0.050	0.010	22.583	0.642
2010	AIB	0.882	0.237	0.029	0.064	0.010	22.796	0.662
2011	AIB	0.871	0.273	0.025	0.071	0.005	23.037	0.523
2000	BOA	0.859	0.851	0.008	0.053	0.001	20.392	0.334
2001	BOA	0.836	0.248	0.013	0.069	0.012	20.613	0.273
2002	BOA	0.877	0.275	0.011	0.037	0.023	20.856	0.479
2003	BOA	0.888	0.167	0.010	0.026	0.007	21.011	0.471
2004	BOA	0.878	0.189	0.012	0.052	0.018	21.184	0.493
2005	BOA	0.877	0.298	0.017	0.056	0.003	21.445	0.467
2006	BOA	0.858	0.378	0.013	0.058	0.001	21.765	0.359
2007	BOA	0.881	0.198	0.012	0.046	0.008	21.946	0.376
2008	BOA	0.902	0.257	0.015	0.027	0.013	22.175	0.415
2009	BOA	0.891	0.283	0.014	0.047	0.014	22.424	0.600
2010	BOA	0.891	0.147	0.012	0.051	0.003	22.561	0.576
2011	BOA	0.891	0.159	0.012	0.058	0.005	22.708	0.477
2000	WB	0.903	0.404	0.018	0.041	0.008	20.058	0.635
2001	WB	0.901	0.134	0.015	0.053	0.009	20.184	0.503
2002	WB	0.901	0.108	0.022	0.050	0.003	20.286	0.443
2003	WB	0.895	0.376	0.017	0.036	0.010	20.606	0.446
2004	WB	0.887	0.282	0.014	0.055	0.014	20.854	0.467
2005	WB	0.889	0.418	0.013	0.053	0.002	21.203	0.481
2006	WB	0.887	0.398	0.011	0.057	0.003	21.538	0.372
2007	WB	0.884	0.541	0.009	0.060	0.002	21.970	0.485
2008	WB	0.853	0.185	0.010	0.068	0.006	22.140	0.608
2009	WB	0.857	0.241	0.011	0.066	0.001	22.356	0.782
2010	WB	0.868	0.122	0.014	0.069	0.002	22.471	0.774
2011	WB	0.864	0.404	0.014	0.069	0.000	22.810	0.695
2000	UB	0.800	0.882	0.042	0.049	0.016	18.778	0.461
2001	UB	0.811	0.497	0.033	0.056	0.005	19.181	0.535
2002	UB	0.830	0.467	0.025	0.041	0.010	19.565	0.751
2003	UB	0.856	0.494	0.019	0.028	0.010	19.966	0.603
2004	UB	0.858	0.437	0.013	0.031	0.002	20.329	0.545
2005	UB	0.854	0.592	0.010	0.056	0.018	20.794	0.560
2006	UB	0.881	0.490	0.009	0.056	0.000	21.193	0.486
2007	UB	0.835	0.365	0.015	0.058	0.002	21.504	0.492
2008	UB	0.856	0.489	0.010	0.058	0.000	21.902	0.567
2009	UB	0.888	0.431	0.009	0.048	0.007	22.261	0.687
2010	UB	0.892	0.267	0.007	0.060	0.008	22.498	0.693
2011	UB	0.883	0.310	0.008	0.061	0.001	22.768	0.590
2000	NIB	0.832	-0.949	0.016	0.010	0.034	19.073	1.115
2001	NIB	0.842	-0.949	0.008	0.058	0.034	19.797	0.438

2002	NIB	0.815	0.349	0.009	0.060	0.001	20.096	0.484
2003	NIB	0.859	0.657	0.007	0.034	0.018	20.601	0.415
2004	NIB	0.861	0.409	0.006	0.051	0.012	20.944	0.398
2005	NIB	0.871	0.389	0.006	0.052	0.000	21.273	0.379
2006	NIB	0.859	0.170	0.015	0.056	0.003	21.430	0.300
2007	NIB	0.837	0.286	0.016	0.057	0.000	21.681	0.370
2008	NIB	0.836	0.400	0.012	0.061	0.003	22.018	0.540
2009	NIB	0.848	0.317	0.012	0.061	0.000	22.293	0.708
2010	NIB	0.846	0.242	0.012	0.063	0.001	22.510	0.743
2011	NIB	0.835	0.191	0.011	0.065	0.002	22.685	0.710
2000	CBB	0.929	0.000	0.038	0.046	0.000	20.697	0.274
2001	CBB	0.931	-0.006	0.037	0.049	0.012	20.691	0.283
2002	CBB	0.920	-0.010	0.040	0.046	0.002	20.680	0.297
2003	CBB	0.916	-0.017	0.038	0.039	0.005	20.664	0.359
2004	CBB	0.921	0.122	0.066	0.026	0.010	20.779	0.487
2005	CBB	0.942	0.733	0.019	0.026	0.000	21.329	0.586
2006	CBB	0.913	-0.019	0.022	0.057	0.022	21.309	0.576
2007	CBB	0.888	0.051	0.022	0.057	0.000	21.359	0.511
2008	CBB	0.892	0.266	0.021	0.066	0.007	21.595	0.627
2009	CBB	0.896	0.084	0.022	0.059	0.005	21.676	0.515
2010	CBB	0.898	0.220	0.020	0.061	0.001	21.874	0.530
2011	CBB	0.896	0.108	0.021	0.058	0.002	21.977	0.556

Appendix 4

Addis Ababa University

School of Business and Public Administration

Department of Accounting and Finance

Interview questions that were conducted on the determinants of capital structure of commercial banks in Ethiopia.

1. What sources of finance does your company mainly use?
2. What are the main factors that can affect the capital structure of your company?
3. When your company considers issuing equity, what factors affect its decisions about equity?
4. How does your company determine the appropriate amount of debt finance and what are the possible factors that can affect it.
5. Does the sources of finance used by your company changed as your business has grown in size?

If you have any opinion regarding the determinants of capital structure please specify…