**Mekelle University**
**College of Business and Economics**
**Department of Accounting and Finance**

# THE DETERMINANTS OF CAPITAL STRUCTURE

## Evidence from Commercial Banks in Ethiopia

By

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*Research Project Submitted to the Department of Accounting and Finance, College of Business and Economics, Mekelle University, for the partial fulfillment of the degree of* ***Master of Finance and Investment***

Under the Guidance of

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Mekelle, Ethiopia

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# DECLARATION

I, Kibrom Mehari Fisseha, hereby declare that the project work entitled "**The Determinants of Capital Structure**: *Evidence from Commercial Banks in Ethiopia*" submitted by me for the award of the degree of Master of Science in Finance and Investment of Mekelle University, is original work and it hasn't been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

Place: *Mekelle* Signature:

Date: *May, 2010* .....

*KIBROM MEHARI FISSEHA*

# CERTIFICATION

I certify that the project work entitled "**The Determinants of Capital Structure**" is a bona-fide work of Mr. Kibrom Mehari who carried out the research under my guidance. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the bases of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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***"But Jesus beheld them, and said unto them,***
***With men this is impossible; but with God all thing are possible."***
**Matthew 19:26** **THANKS TO GOD!**

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# ABSTRACT

*Although there have been many prior studies of the determinants of capital structure, the question of what determines the best financing mix that maximizes a firm's value is still the most debatable issue in corporate finance. Besides, a great deal of previous studies focused mainly on developed countries' non-financial firms paying little attention to developing countries and financial sector. Therefore, this study attempted to fill the gap by analyzing the capital structure for commercial banks in Ethiopia. This paper approached the issues of capital structure by evidencing commercial banks in Ethiopia to uncover the firm level determinant factors of capital structure. To discover what determines capital structure, six firm level explanatory variables (Profitability, Tangibility, Size, Growth, Age and Tax-Shield) were selected and regressed against the appropriate capital structure measure (Debt to Equity Ratio). A sample of seven commercial banks was taken and secondary data were collected. Consequently, multivariate regression analysis was made based on financial statement data of the selected commercial banks over the study period of 2000 - 2009 E.C. The major findings of the study indicated that profitability, size, age and tax-shield variables are the significant firm level determinants of capital structure in Ethiopian commercial banks case. In addition to this, the two variables (profitability and growth) established negative relationship and the remaining four variables (tangibility, size, age and tax-shield) showed positive relationship with capital structure. Far beyond this, it is also revealed that there is consistency between profitability and Pecking order theory, tangibility and Static Trade-off theory, Pecking order theory and Agency cost Theory; both variables size and growth and Static Trade-off theory and Agency cost Theory; and variables age and tax-shield and Static Trade-off Theory in Ethiopian commercial banking case.*



**Keywords:** *Capital Structure, Determinants, Commercial banks, Ethiopia, STT, POT, ACT, DER, Profitability, Tangibility, Size, Growth, Age and Tax-Shield*

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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| **ACT** | Agency Cost Theory |
| **AG** | Age |
| **CBE** | Commercial Bank of Ethiopia |
| **CBBE** | Construction and Business Bank of Ethiopia |
| **CEO** | Chief Executive Officer |
| **CLRM** | Classical Linear Regression Model |
| **DBE** | Development Bank of Ethiopia |
| **DER** | Debt to Equity Ratio |
| **G7** | Group of Seven (Canada, France, Germany, Italy, Japan, United Kingdom and United States of America) |
| **GDP** | Gross Domestic Product |
| **GR** | Growth |
| **$H_0$** | Null Hypothesis |
| **$H_1$** | Alternate Hypothesis |
| **IFC** | International Finance Corporation |
| **MM** | Modigliani and Miller |
| **NBE** | National Bank of Ethiopia |
| **OLS** | Ordinary Least Square |
| **POT** | Pecking Order Theory |
| **PR** | Profitability |
| **RESET** | Regression Specification Error Test |
| **STT** | Static Trade-off Theory |
| **SZ** | Size |
| **TN** | Tangibility |
| **TXS** | Tax-Shield |
| **USA** | United States of America |

# CHAPTER 1

# INTRODUCTION

*This chapter introduces the research subject briefly and outlines the research background, incorporating the results and problems from past studies. The problem statement is given and research objectives have been clearly described and based on which hypotheses are formed. Apart from this, this chapter also identifies the significance, scope, limitations and structure of the research project.*

## 1.1. Background of the Study

Capital structure of a firm describes the way in which a firm raises capital needed to establish and expand its business activities. It is a mixture of various types of equity and debt capital a firm maintains resulting from its financing decisions. For example, a firm that sells Birr 25 million in equity and Birr 75 million in debts is said to be 25 percent equity-financed and 75 percent debt-financed. The firm's ratio of debt to total financing, the leverage, is therefore, 75 percent. Exceptionally crucial is for someone to know how a firm chooses its optimal mix of debt and equity capital. Phrased in another way, what is the optimal capital structure for a firm? Whether or not an optimal capital structure does exist is an issue in corporate finance (Myers, 1984).

The capital structure decision is one of the most important decisions made by financial managers in this modern era. The capital structure decision is at the center of many other decisions in the area of corporate finance. One of the many objectives of a corporate financial manager is to ensure low cost of capital and thus maximize the wealth of shareholders. Hence, capital structure is one of the effective tools of management to manage the cost of capital. An optimal capital structure is reached at a point where the cost of the capital is minimal. But, what are the potential determinants of such optimal capital structure? This is the key question that has been answered by this research in the case of commercial banks in Ethiopia.

For the past sixty years, after the influential irrelevance theory of Modigliani and Miller (1958) on capital structure, capital structure choice has inspired and fascinated many researchers. Therefore, many studies theoretically and empirically investigated and

explained firms' capital structure choices. But, there still remains no clear answer to Myer's 25 years old question (Myers, 1984, pp575) "How do firms choose their capital structure?" Different theories answer this question from different points of view. For instance, Static trade-off theory postulates the existence of an optimal capital structure, which indicates the optimal choice of capital structure by firms, is a balance of corporate tax-shield against the bankruptcy cost and agency cost.

Research on the determinants of capital structure was initially directed mainly to firms in the developed countries specifically in United States. One of the classical researches was carried out by Titman and Wessels (1988); where they studied the theoretical determinants of capital structure. The theoretical attributes namely; asset structure, non-debt tax shields, growth, uniqueness, industry classification, firm size, earnings volatility and profitability were tested to see how they affect a firm's choice of debt-equity mix. To broader the understanding of capital structure models, Rajan and Zingales (1995) have attempted to find out whether the capital structure choices in other countries are made based on factors that similar to those capital structure influencing ones in U.S firms. Four factors; tangibility of assets, growth, firm size and profitability were tested to see their influences on leverage.

However, there were not many researches directed towards developing countries that saw the applicability of the theories of capital structure developed from the developed nations. Booth et al. (2001), Maghyereh (2005), Amidu (2007), Abor (2008), and Bas et al. (2009) were among the scholars who have studied the capital structure issues in the developing nations. Thus, one of the prominent studies was done by Booth et al. (2001). They have undertaken an interesting study by taking secondary data from the International Finance Corporation (IFC) for the largest companies in 10 developing countries. Several variables were tested and analyzed to explain capital structure determinants by considering the impact of taxes, agency conflicts, financial distress and the impact of informational asymmetries. The variables mentioned include tax, business risk, asset tangibility, sales, return on assets and market-to-book ratio. On the other side, one of the latest studies was conducted by Bas et al. (2009) in developing countries. This paper examined the determinants of capital structure decisions of firms in developing countries collecting secondary data for 11,125 firms from World Bank of 25 developing countries. Bas et al. draw the following major conclusions from the results.

Regardless of the fact that how a firm defines capital structure, in accordance with the capital structure theories, the importance of firm level variables, such as tangibility and profitability, in determining capital structure decision is confirmed. However, the research scholars have identified some systematic differences in the way debt ratios were affected by GDP growth rates, inflation rates and the development of capital markets.

Most capital structure studies made to date are based on data from developed countries. There are few studies that provide evidence from developing countries. The determinants of capital structure of Ethiopian firms are still in under-explored areas in the literature of financing decision. As per the researcher's access and knowledge, the researches conducted on determinants of capital structure so far in Ethiopian case are by Ashenafi (2005) and Mintesinot (2010).

Ashenafi (2005) approached the question of capital structure using data from medium firms in Ethiopia. He 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 proved that non-debt tax-shield, economic risk, profitability, growth, tangibility, and age showed a negative coefficient of correlation with debt to equity ratio. Recently, Mintesinot (2010) has undertaken an attention-grabbing study on the determinants of capital structure evidencing manufacturing firms in Tigray, Ethiopia. Mintesinot has used eight explanatory variables: Tangibility, Profitability, Growth, Age, Uniqueness, Size, Earnings Volatility, and Non-Debt Tax Shields. After regressing these variables against leverage, he could come up with the outcomes as following: Tangibility, Growth, Age, Size, Earnings Volatility and Non Debt Tax-Shield variables are the significant determinants of capital structure in at least one out of the three models for capital structure employed in his study.

In general, there are a large number of empirical papers on the determinants of capital structure. Nevertheless, understanding the determinants of capital structure is as important for banks as for non-banking firms. Diamond and Rajan (2000) found that a bank's capital structure affects its stability as well as ability to effectively provide liquidity and credits to debtors and borrowers, respectively. Given that a well-functioning and well-developing banking system plays a crucial role in promoting growth of an economy, it is imperative to understand the factors which drive the capital structure decision of banks. One of the well-known researches was carried out by Gropp and Heider (2007) evidencing banks from

developed countries (US and 15 EU members, for 14 years) to study capital structure determinants of banks. Their results provided strong support for the relevance of standard determinants of capital structure on bank capital by testing the significance of size, profitability, market-to-book ratio and asset tangibility. Another study by Octavia and Brown (2008) investigated whether the standard determinants of capital structure can be applied to banks in developing countries. The results of Octavia and Brown suggested that the standard determinants of capital structure do have power in explaining leverage of banks in developing countries.

Currently, there is no clear understanding on how commercial banks operating in Ethiopia choose their capital structure and what internal factors influence their corporate financing behavior. In this study, the researcher has tried to identify the factors which determine capital structure decisions by selecting 6 (six) bank relevant firm-specific explanatory variables such as profitability, collateral value of assets (tangibility), size of the firm, growth, age of the firm and tax-shield from the empirical studies of Titman and wassels (1988) in USA, Rijan and Zingales (1995) in G7 countries, Booth et al. (2001) in developing countries, Ashenafi (2005) in Ethiopia, Gropp and Heider (2007) in banks of developed countries, Octavia and Brown (2008) in banks of developing countries, Bas et al. (2009) in developing countries and Mintesinot (2010) in Ethiopia.

Multivariate ordinary least square (OLS) regression method is used to run the analysis of the pooled cross-sectional data collected from the National Bank of Ethiopia of 10 years financial statement of 7 commercial banks. The powerful and full-featured statistical programming language, STATA software, is used to test the reliability of the data, to test validity of the specified model and to analyze it. As a result, this research presents an empirical analysis of determinants of capital structure of commercial banking sector in Ethiopia with most recent available data.

## 1.2. Statement of the Problem

Over the previous years, numerous studies on capital structure theory have appeared. However, based on the research made by Myers (1984), it is stated that each of the theories on capital structure applied are based on certain circumstances. As such, the theories are not designed to be general rather they are conditional theories of capital structure; each of which emphasizes on certain costs and benefits of alternative financing strategies.

Most capital structure studies to date are based on data from developed countries' firms and very few studies provide evidence from developing countries. The capital structure of banks has not also been investigated; there is no clear understanding on how banks construct their capital structure and what internal (firm-specific) factors influence their corporate financing decision. Therefore, given the unique financial features of banks and the environment in which they operate, there is a strong ground to conduct separate study on capital structure determinants in banks.

This study, therefore, tried to examine determinants of capital structure of the Ethiopian commercial banking environment by using its internal (firm-specific) determining factors. Ethiopia differs from other developing countries previously studied in such a way it has no secondary capital market which makes things easier for firms to raise funds and choose the best mix of debt and equity sources. In general, the researcher is fascinated to conduct this study because of the following motives:

I. *There is no clear evidence about the potential determinants of capital structure of commercial banks operating in Ethiopia.*
II. *There is no clear evidence whether the financing decisions made by commercial banks in Ethiopia provide empirical support for the existing capital structure relevancy theories.*
III. *As per the access and knowledge of the researcher, no study has been made casing the Ethiopian Commercial Banks to analyze capital structure and its determinants.*

Therefore, this paper fills the stated gap by identifying the factor that determine capital structure decision and providing additional facts to the theories of capital structure relevancy evidencing commercial banks in Ethiopia.

## 1.3. Objective of the Study

### *1.3.1. General Objective*

The general objective of this study is to analyze the internal (firm level) factors determining capital structure decisions of Commercial Banks in Ethiopia.

### *1.3.2. Specific Objectives*

This study attempted to achieve the following specific objectives:

i. To measure the effect of change in profitability on the financing mix (leverage) of commercial banks in Ethiopia,

ii. To determine the consequence of change in the tangibility of assets held by commercial banks of Ethiopia on the debt to equity ratio,

iii. To find out the extent to which variations in bank size explain the variations in debt to equity ratio of commercial banking business in Ethiopia,

iv. To determine the effect of a change in growth of commercial banks on their leverage,

v. To find out the response of capital structure to the age variation of the commercial banks operating in Ethiopia,

vi. To determine the impact of tax-shield on financing decision of commercial banks in Ethiopia,

vii. To verify if capital structure decisions that are made in the commercial banks of Ethiopia provide empirical support for existing theories.

## 1.4. Hypothesis Development

A major purpose of this paper is to estimate the factors that determine the choice of capital structure in Ethiopian commercial banks. Previous capital structure theories and empirical results identify a number of variables that influence firm's debt position in the context of firm-specific (Titman and Wessels, 1988; Harris and Raviv, 1991; Rajan and Zingales, 1995; Booth *et al.*, 2001; Benito 2003). To achieve the intended goal, the researcher has formulated six hypotheses. The developed hypotheses and their rationale are discussed below.

## I. PROFITABILITY

Profitability is a strong point of dissent between the two theories of capital structure i.e. Pecking order theory and Static trade-off Theory. For the Static trade-off theory, the higher the profitability of the firm, the more are the reasons it will have to issue debt, reducing its tax burden.

On the other hand, Pecking order theory assumes that larger earnings lead to the increase of the main source of capital firms choose to cover their financial deficit: retained earnings. Therefore, the Static trade-off theory expects a positive relationship between profitability and leverage, whereas the pecking order theory expects exactly the opposite.

***Hypothesis 1:***

$H_0$ = *There is a negative relationship between profitability and leverage ratio.*
$H_1$ = *There is a positive relationship between profitability and leverage ratio.*

## II. TANGIBILITY

A firm having a large amount of fixed assets can easily raise debt at cheaper rates because of the collateral value of those fixed assets (tangibility). Firms with a higher ratio of tangible assets have an incentive to borrow more because loans are available to them at a relatively cheaper rate. Therefore a positive relationship between tangibility of assets and firm's leverage is expected.

Titman and Wessels (1988) and Harris and Raviv (1991) argue that tangibility might be the major factor in determining the firm's debt levels. If debt is secured against assets, borrower is restricted to using loaned funds for a specific project, and creditors have an improved guarantee of repayment. Thus, firms with high level of fixed assets would have higher level of debt.

***Hypothesis 2:***

$H_0$ = *There is a positive relationship between tangibility and leverage ratio.*
$H_1$ = *There is a negative relationship between tangibility and leverage ratio.*

## III. SIZE

Size is one of the most widely accepted determinants in research on capital structure. Relationship between size and leverage is mixed. For the Static trade-off approach, the larger the firm, the greater is the possibility that it can issue debt there by resulting in an existence of a positive relationship between debt and size. One of the reasons for this is that the larger the firm the lower is the risk of bankruptcy (Titman and Wessels, 1988).

With respect to the Pecking order theory, Rajan and Zingales (1995) argued that this relationship could be negative. There is less asymmetrical information about the larger firms, reducing the chances of undervaluation of the new equity issue, encouraging large firms to use equity financing. This means that there is a negative relationship between size and leverage of the firm.

***Hypothesis 3:***

$H_o$ = *There is a positive relationship between the firm's size and its leverage ratio.*
$H_1$ = *There is a negative relationship between the firm's size and its leverage ratio.*

## IV. GROWTH

The relationship between growth opportunities and the debt ratio is also quite conflicting. The Static trade-off theory predicts that firms with more growth opportunities will have less debt as there is less need for the role of debt. Firms that have growth opportunities would prefer to retain debt capacity as they might need to borrow in the future. Further, growth opportunities are capital assets that add value to a firm but cannot be collateralized and do not generate current taxable income (Titman and Wessels, 1988). For this reason, the arguments put forth suggest a negative relationship between debt and growth opportunities.

However, Benito (2003) proposes the opposite. If firms have growth opportunities, then they require more funds to grow. Given that internal resources are not sufficient, firms would then turn to external sources of finance, which would lead to a higher debt level in firms.

***Hypothesis 4:***

$H_o$ = *There is a positive relationship between growth and leverage ratio.*
$H_1$ = *There is a negative relationship between growth and leverage ratio.*

## V. AGE

Age of the firm is a standard measure of reputation in capital structure models. As a firm continues longer in business, it establishes itself as an ongoing business and therefore increases its capacity to take more on debt; hence age is positively related to debt. Before granting a loan, banks tend to evaluate the creditworthiness of entrepreneurs as these are generally believed to pin high hopes on very risky projects promising high profitability rates. If the investment is profitable, shareholders will collect a significant share of the earnings, but if the project fails, then the creditors have to bear the consequences (Myers, 1977).

According to Mintesinot (2010), as firms become aged, the long years of track record will enable them to easily convince creditors and also will expertise in finding alternative credit source cost effectively or in favorable conditions while going for debt capital.

***Hypothesis 5:***

$H_o$ = *There is a positive relationship between a firm's age and its leverage ratio.*
$H_1$ = *There is a negative relationship between a firm's age and its leverage ratio.*

## VI. TAX-SHIELD

Tax-Shield is believed to be important factor that affects the amount of debt that a firm has to have in its capital structure (Barclay and Smith, 1999). The more profitable a firm is, the more is the amount of tax it would have to pay on its interest payments. To avoid paying a lot in tax, firms might prefer to take more debt because interest payments artificially reduce the profits of the firm and consequently they pay less tax on their profits. Therefore, by taking more debt in their capital structure, firms benefit from the 'interest tax-shield'. This benefit of debt is promoted mainly by the Static trade-off theory which predicts that the more the tax amount a firm has to pay, the greater is the debt it will have in its capital structure.

***Hypothesis 6:***

$H_o$ = *There is a positive relationship between tax-shield and leverage ratio.*
$H_1$ = *There is a negative relationship between tax-shield and leverage ratio.*

## 1.5. Significance of the Study

Since banking industry is emerging and flourishing in the Ethiopian economy, assessing the factors determining capital structure decision will help concerned parties innovate actions that can fortify their competitive position in the industry. This study, therefore, apart being a step for the researcher's educational career, has the following immense importance:

First, even though research studies related to the area of capital structure decisions are plenty, those that are concerned in the financial system of developing countries are few. This study, therefore, attempts all its best to contribute to the literature by assessing the capital structure decision determining firm-specific factors of commercial banks in the developing countries like Ethiopia.

Second, the study will have great importance to external investors and shareholders, bank managers, lenders and policy makers in making knowledgeable decisions and regulations considering the financing patterns of the banking sector in Ethiopia.

Last but not least, the study notably contributes to other studies to be made in different economic sectors by providing the picture of the firm level factors determining capital structure decisions of commercial banks in Ethiopia by serving as a reference point.

## 1.6. Scope of the Study

In any study area, it is expected to encounter numerous issues such as the concentration of field study, data collection and others which are constrained by available resources like timeframe, financial and availability of information. This study is of no exceptions where the scope is delimited to the study of determinants of capital structure in the field of corporate finance, the sample size and lastly the time horizon of the study. The details of the scope of this study are as follows:

a) For fair and uniform comparison and to obtain valid results, this study is delimited to select commercial banks in Ethiopia. In other words, the reason why this study is delimited to commercial banking sector is:

   - ☞ Firstly, commercial banking business is emerging and flourishing in Ethiopian economy where the literature on determinants of capital structure is limited.

- ☞ Secondly, the commercial banks share common attributes in accounting practices, corporate governance and corporate control. As a result, Development (DBE), Construction and Business (CBBE) and other banks are not considered due to their specialized business objectives.

b) This research project is limited to the sample of seven commercial banks that are selected from the population of 11 commercial banks and represents 64 percent of the existing commercial banks. More specifically, the entire population of commercial banks that have been operating, at least for the last ten years (2000-2009), was considered and secondary data was collected from their 10 years' financial statements.

c) The study considered only firm-specific determinants of capital structure. External factors such as macroeconomic determinants of capital structure (Inflation, GDP growth, Interest rate, etc.) which are beyond the control of the firm are not included the study.

## 1.7. Limitations of the Study

There is nothing a study that can be made without constraints. Therefore, there are four main limitations in this study.

a) Due to insufficiency of the research project time, the researcher could not include suspected macroeconomic (external) factors in Ethiopia which may have a certain contribution to the determination of the financing mix of a firm.

b) Due to the unavailability of secondary market, the researcher was limited to take only determinant factors that can be measured only by taking data from the banks financial statements.

c) The state owned, namely Commercial Bank of Ethiopia, is not comparable to the other banks in the sample since it is more than three times as large as each of the other banks in the sample. Therefore, the analysis, based on the observations from all the banks, may be subjective to some extent.

d) The researcher didn't include the primary data such as interview of the banks' CEOs and financial managers to analyze their knowledge on capital structure and their financing decision practices. The study would have been much better had it been able to encompass the exiting practices of their financing decisions.

## 1.8. Structure of the Research Project

**The research project comprises five chapters as follows:**

Chapter **1** **INTRODUCTION**

Introduces the research subject briefly and outlines the research background, incorporating the problems and results from past studies. The problem statement is given and research objectives have been clearly described and based on which, hypotheses are formed and model is specified. Apart from this, it also identifies the significance, scope and limitations of the study.

Chapter **2** **LITERATURE OF RELATED REVIEW**

Presents the review of related empirical literatures. It is divided into several areas as follows; general overview, definition, theories, theoretical determinants, empirical evidence, features of capital structure, bank capital structure, and overview of commercial banking in Ethiopia.

Chapter **3** **RESEARCH METHODOLOGY**

Highlights the methodology of the study. The chapter comprises study design, sampling design, data source and collection, method of data analysis and model specification. Here, the definitions and measurements of the variables are well defined.

Chapter **4** **RESULTS & DISCUSSIONS**

Presents the results of the multivariate regression model. This chapter analyzes the collected secondary data, the results and explains the determinants of capital structure in the selected case.

Chapter **5** **CONCLUSION & RECOMMENDATION**

Summarizes the findings of the study, concludes the results and forwards recommendations based on the findings of the study.

# CHAPTER 2

# REVIEW OF RELATED LITERATURE

*The literature review helps in generating a framework for the study by identifying the important issues in capital structure and its theories that are relevant to the study. Therefore, this chapter is divided into several areas; general overview, definition of capital structure, theories of capital structure, theoretical determinants of capital structure, bank capital structure, Overview of Commercial Banks in Ethiopia. In this chapter, a review of related empirical literature is also presented.*

## 2.1. General Overview

Corporate sector growth is vital to economic development. The issue of finance has been identified as an immediate reason why businesses in developing countries fail to start or to progress. It is imperative for firms to be able to finance their activities and grow over time if they are ever to play an increasing and predominant role in providing employment as well as income in terms of profits, dividends and wages to households. So, a path to development could not be realized without enabling to evaluate the business environmental factors particularly factors affecting access to finance. Consequently, managerial decisions related to finance are at the center of the economic or business activities, which are the subject matter of financial management discipline.

Financial management discipline has three major decision functions/activities:

i. *Capital budgeting (Investment) Decision*: deal with the efficient utilization of capital or funds to acquire assets. It is more concerned with the size, type and percentage composition of assets of a firm.
ii. *Capital structure (financing) decisions*: emphasize on the proper selection of mix of capital i.e. debt vs. equity. It deals mainly with the size, type and percentage composition of capital sources.
iii. *Asset management decision:* is the other decision area that deal with efficient utilization of assets, being acquired through investment decision.

Here, the literature focuses on capital structure decisions' general theories, and particularly the related determinants of capital structure.

## 2.2. Definition of Capital Structure

There are many definitions given to capital structure of companies. Brealey and Myers (1991) defined capital structure as comprising of debt, equity or hybrid securities issued by the firm. VanHorn (1989) defined capital structure as the proportion of debt to the total capital of the firms. Pandey (2005) defined capital structure as a choice of firms between internal and external financial instruments.

From the definitions given by many previous researchers, capital structure of a firm describes the way in which a firm raise capital needed to establish and expand its business activities. It is a mixture of various types of equity and debt capital a firm maintains, resulting from the firm's financing decisions. The amount of debt that a firm uses to finance its assets is called leverage. A firm with a lot of debt in its capital structure is said to be highly levered. A firm with no debt is said to be unlevered. For example, a firm that sells Birr 20 million in equity and Birr 80 million in debts is said to be 20 percent equity-financed and 80 percent debt-financed. The firm's ratio of debt to total capital is 80 percent and is referred to as the firm's leverage.

The term capital structure is used to represent the proportionate relationship between debt and equity. Debt represents the creditors' claim i.e. liabilities or borrowings. Equity includes paid-up share capital, share premium, and reserve and surplus (retained earnings).

Managers, in the extent to pursue wealth maximization objective of a firm, should examine the set of theories and at least major factors affecting the decision that help them choose the optimal capital structure. Normally firms have option of choosing debt financing, equity financing, or combination of the two, with the other option of internal financing mainly from the retained earnings. Such dealings of financing decisions are, in fact, termed as Capital Structure Decisions.

## 2.3. Capital Structure Theories

Beginning from Modigliani and Miller (1958)'s irrelevance proposition, capital structure puzzle has drawn a lot of attention. How do firms choose their capital structure? What are the determinants of firm capital structure decisions? Numerous researches study in these questions, however, the results are still ambiguous. This Section starts with the capital structure irrelevancy theory. Following subsections give the overview of theories and empirical studies that suggest that capital structure affects firm's value.

### *2.3.1. Capital Structure Irrelevancy Theory*

### (Modigliani – Miller Theorem)

In the 1950s, two financial economists, Franco Modigliani and Merton Miller, made significant contribution to the corporate finance and were rewarded decades later with a Noble Prize in economics. They came up with the new propositions to explain the capital structure theory and here starts the birth of modern capital structure theory. Their contribution was to show that, under certain assumptions (known as the MM assumptions and MM theory), the capital structure, or mix of debt and equity, does not have an impact on the overall value of the firm. Theory of irrelevancy was presented in an era when research was dominated by assumption that there is no interaction between a firm's investment and financial decisions of the firm.

Modigliani and Miller (1958) demonstrated that the market value of a firm is determined by its earning power and the risk of its underlying assets, and independent of the way it chooses to finance its investments or distributes dividends. Moreover, a firm can choose between three methods of financing: issuing shares, borrowing or spending profits (as opposed to disbursing them to shareholders as dividends). The theorem gets much more complicated, but the basic idea is that under certain assumptions, it makes no difference whether a firm finances itself with debt or equity.

Five years later, Modigliani and Miller (1963) introduced corporate taxes into their earlier model by setting free the first assumption of no taxes. They argued that optimal capital structure can be obtained for firms with 100 percent debt financing by having the tax shield benefits of using debt. With tax introduced the value of levered firm becomes higher. This was their correction model. Some researchers felt that Modigliani and Miller failed to

discuss in their article on the practical applications of their theory to individual firms and on how well the theory explains observed facts, such as debt ratios, market reactions to security issues and so on.

Thereafter, several empirical researches were conducted on the concept developed by Modigliani and Miller. In most of the later studies, researchers like Durand et al. (1989) accepted the importance of financial leverage in affecting the overall cost of capital, the return to the shareholders and the value of a firm. They criticized the hypothesis of MM theory, and maintained that several factors such as existence of imperfectness in the market, the differences, existence of transaction cost and institutional restrictions and preferences for the present income over the future to affect the capital structure study. These have relevance in affecting the value of a firm and were ignored by MM.

Accordingly, if capital structure is irrelevant in a perfect market, then imperfections which exist in the real world must be the cause of its relevance. In the next section we look at how, when assumptions in the M&M model are relaxed, imperfections arise and how they are dealt with. Subsequent literatures placed much emphasis on relaxing the assumptions made by Modigliani and Miller, in particular considering agency costs (Jensen and Meckling, 1976; Myers, 1977; Harris and Raviv, 1990), signaling (Ross, 1977), asymmetric information (Myers and Majluf, 1984; Myers, 1984), product/input market interactions (Brander and Lewis, 1986; Titman, 1984), corporate control considerations (Harris and Raviv, 1988) and taxes (Bradley et al., 1984).

The current state of capital structure comprises a wide variety of theoretical approaches but no theory is universally accepted and practically applied (Myers, 2001; Harris and Raviv, 1991). According to Myers 2001 (p.81)

> "*There is no universal theory of the debt-equity choice, and no reason to expect one. There are several useful conditional theories however*".

The major reason why financing matters include taxes, differences in information and agency costs. The different theories of optimal capital structure depend on which economic aspect and firm characteristic we focus on.

### 2.3.2. Capital Structure Relevancy Theories

According to Buferna et al (2005), in the literature of capital structure, three important and popular but conflicting capital structure relevancy theories have been developed, which includes the Static trade-off theory, Pecking order theory and Agency costs theory. These theories are explained below:

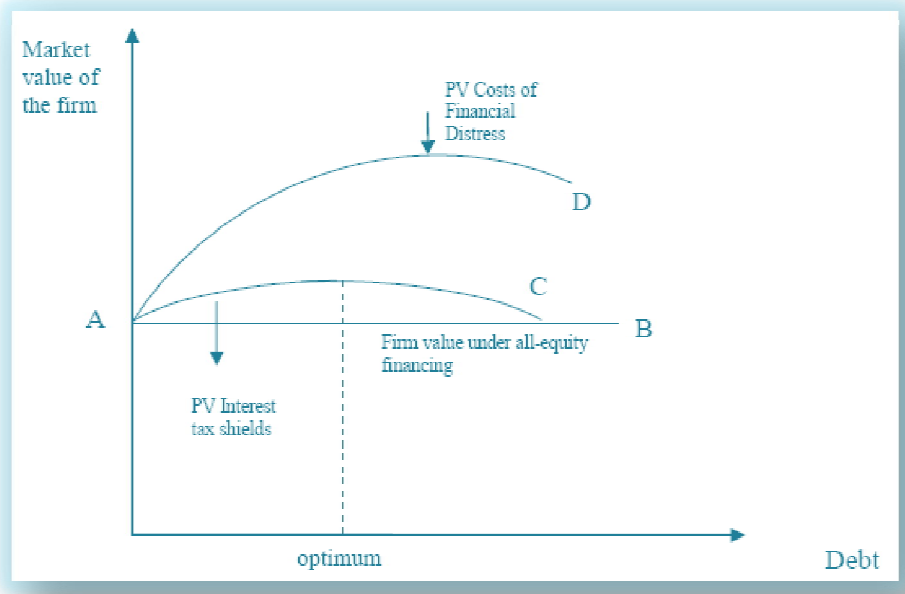
#### 2.3.2.1. Static Trade-off Theory

The Static trade-off theory (STT) came as a reaction on the Miller and Modigliani theory, presenting the benefits of debt financing via debt related tax shields. Doubts were raised over the fact that there was no offsetting cost to debt. Therefore, a discussion followed saying that the optimal leverage should be found where a trade-off between tax shield benefits of debt and costs of financial distress was found (Shyam-Sunder and Myers, 1999). Debt enables the possibility to deduct interest charges raising incentive for higher leverage in order to maximize the tax shield. By doing this the firm value increases with the value of the tax shield (Graham, 2000). Damodaran (2001) stretches the increased financial discipline for managers as a consequence of higher debt levels. However there have been raised concerns on increasing risks of bankruptcy with increasing debt levels and likelihood of raising agency costs occurring between owners and managers. An underlying reason for this is a conflict of interests generated by debt (Myers, 1984). Therefore, according to the trade-off theory, an optimal debt level which maximizes the value of the firm does exist, when attaining a trade off as balancing the benefits of debt against the cost of financial distress.

As indicated in Graph 2.1, the straight line AB shows the value of a firm under all-equity financing. When a firm undertakes debt it has to pay interest. Interest payments are generally tax deductible, thus when a firm takes debt; it is able to increase its value. This is called the interest tax shield of debt. Debt almost literally shields the firm from paying out more in taxes. Therefore, as curve AC shows, initially as the firm undertakes more debt, the value of the firm increases. However, after a certain level (the optimum level) of debt, the value of the firm starts falling as shown by the falling portion of curve AC. After a certain level of debt, the costs of debt start outweighing the benefits of debt. This is illustrated by the curve AD, which shows that the costs of financial distress rise significantly at higher levels of debt. At higher levels of debt, firms have to pay more interest and if they are unable to repay the debt and interest, then they are likely to go bankrupt. As costs of

financial distress rise, firms would prefer to stick to a 'reasonable' level of debt. This is illustrated in the diagram above where the optimum market value of the firm is achieved where the present value of the interest tax shield is at a maximum. The trade-off model assumes that companies have an optimal capital structure and they aim to attain this through a target debt level. This is the reason why the Trade-off Theory is often referred to as the 'Static Trade-off Theory' in the literature.

**Graph 2.1:** **The Static Trade-off Theory of Capital Structure**




**Source:** *Myers, 1984 pp 577*

Debt has the disadvantage that it increases the probability of firms becoming financially distressed. The costs of debt include potential bankruptcy costs. Repayment of interest on debt is an obligation that a firm has to fulfill whatever its financial state. Hence, if a firm is unable to undertake its debt obligation it will obviously face bankruptcy.

Another cost of debt is the agency conflicts that can arise between stockholders/shareholders and bondholders/debt holders (Fama and French, 2002). This can be explained by the fact that if an investment pays off equity holders are the ones to benefit as they are entitled to the residual profits after interest on debt has been repaid. Risky investments are the ones that normally have higher returns and therefore equity holders will prefer these types of investment. Debt holders on the other hand, are only concerned with their interest payments. They would prefer firms to choose less profitable but safe investments. This explains the conflict that may arise between stockholders and bondholders.

The benefits of debt include the tax deductibility of interest payments (Benito (2003). As argued by Benito firms use debt as a means of limiting the interest of managers which may diverge from the interests of shareholders. In fact, debt reduces free cash flow problems as excess cash is used to repay debt, rather than managers using it to consume bonuses (Fama and French, 2002; Harris and Raviv, 1991).

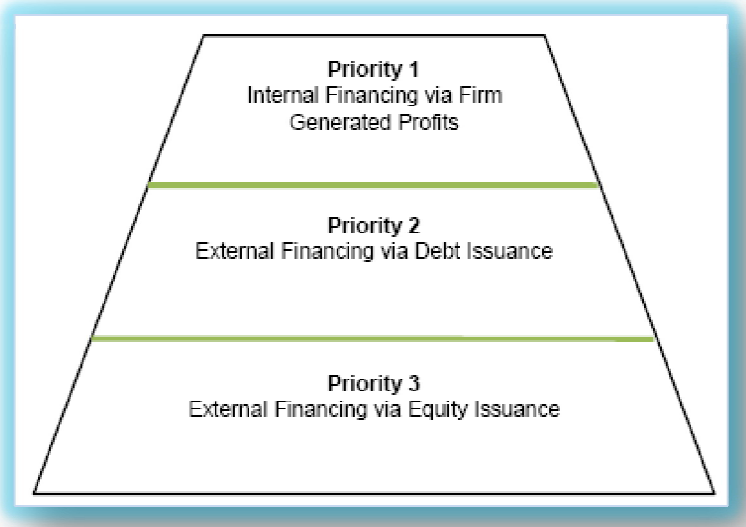
#### *2.3.2.2. Pecking Order Theory*

Firm managers or insiders are assumed to possess private information about the characteristics of firm's returns and the investment opportunities available to them (Harris and Raviv, 1991). Various theories have been developed that have attempted to explicitly model this private information which has consequently given rise to theories other than the Trade-off Theory. The Pecking Order Theory (POT) is one such theory that attempts to explain capital structure decisions by formally taking into account the inherent information asymmetry that exists between different parties. The pioneers that have explicitly accounted for asymmetric information in their work have been Ross (1977) and Leland and Pyle (1977). However, the first ones to actually take into account asymmetric information in the area of capital structure have been Myers (1984) and Myers and Majluf (1984). They showed that the choice of capital structure mitigates inefficiencies in the firm's investment decisions that are caused by information symmetry.

According to the Pecking Order theory, firms have a strong preference for internal finance (Myers, 1984) as it is believed to have a cost advantage over new debt and equity. If external finance is required, firms first issue debt and when all other "safe" options are exhausted; they issue equity as a last option. The literature regarding the Pecking Order theory has been dormant since its inception in the early 1980's when it was first proposed by Myers (1984) and Myers and Majluf (1984).

The Pecking Order Theory proposed by Myers (1984), prescribes a strict ordering or hierarchy of finance: firms use internal finance first then debt and only when such options are exhausted, equity finance is used. This is explained by the fact that internal and external finance are not perfect substitutes.

**Figure 2.1:** Pecking Order of Financial Hierarchy




**Source:** *Henrik and Sandra, 2004 pp 5*

The Pecking Order Theory is diagrammatically illustrated above. The hierarchy shown in Figure 2.1 above can be explained by number of factors. These factors include the costs associated with each form of finance which are related to the degree of information asymmetry, the "safeness" of each form of finance or the signal that the issuance of some form of finance gives to the market. Internal finance is believed to be the cheapest source of finance followed by debt and equity. The availability of internal funds allows firms to undertake investment without having to resort to external finance which is relatively more expensive due a number of factors.

Additionally, Myers (1984), explains this hierarchy by the fact that firms follow the rule of "issue debt when investors undervalue the firm and issue equity or some other security when they over-value it." Investors are aware of this and do not buy securities unless they are convinced that the firm has exhausted its "debt capacity". Hence, investors typically ensure that firms follow a pecking order.

Also the issuance of debt or equity can cause agency problems to arise. The issuance of debt can cause conflicts to arise between managers and debt holders while the issuance of equity can cause conflicts to arise between debt holders and equity holders. Furthermore, the issuance of external finance namely debt, involves repayment of capital and interest which the firm has to pay whatever its financial state. This increases the risk of financial distress. All these factors explain why a firm would prefer internal finance over external finance.

Another explanation for the pecking order is provided by Myers and Majluf (1984) that draws from an asymmetric information framework. The management is assumed to know more about the firm's value than the potential investors. Only insiders know the quality of a firm or its investment projects. Therefore outsiders require a premium if they are asked to fund these projects. The degree of information asymmetry regarding equity is higher when compared to debt. Financial intermediaries are able to monitor the firm and gain access to information that outside investors cannot get. Outsiders are normally not able to monitor firms and thus require a much higher premium on equity finance than debt since they are in the dark regarding the growth prospects of firms.

Asymmetric information increases the cost of debt but, on the other hand, tax advantages have an opposing effect, which reduce the cost of debt relative to equity issues (Myers, 1984). The most expensive source of finance is believed to be equity finance due to various costs associated with new equity issues. These costs include underwriting discounts, registration fees, taxes and selling and administrative expenses. Also, firms tend to issue 'safe' securities first, namely in the form of debt rather than equity. Here 'safe' implies that the terms are not affected by managers inside information (Shyam- Sunder and Myers, 1999). Debt cannot be regarded as a 'safe' security as there are costs of financial distress associated with it, but it is still considered 'safer' than equity.

#### *2.3.2.3. Agency Costs Theory*

The next important theory mentioned in the literature is the agency cost theory. This theory was developed by Jensen and Meckling in their 1976 publications. This theory considered debt to be a necessary factor that creates conflict between equity holders and managers. Both scholars used this theory to argue that the probability distribution of cash flows provided by the firm is not independent of its ownership structure and that this fact may be used to explain optimal capital structure. Jensen and Meckling recommended that, given increasing agency costs with both the equity-holders and debt-holders, there would be an optimum combination of outside debt and equity to reduce total agency costs.

Ryen et al. (1997) provide a theoretical summary of agency cost theory. According to Ryen et al., two sets of agency problems were faced by firms, conflict between managers and

stockholders and conflict between stockholders and bondholders. For the managers and stockholders conflict, managers usually overspend or take less leverage and these are seen not benefiting the stockholders. Managers take lesser leverage in order to avoid total risk, which comprises of risk of losing job, reputation and wealth. On the other hand, overspending by managers to make opportunity lost of firms' cash flow which could be used on the activities that benefit stockholders.

Therefore, many studies had been diverted to find out the ways to reduce this agency costs between managers and stockholders. The conflict of shareholders and bondholders is another area of agency cost problem, whereby shareholders have better incentives to maximize their wealth at the expense of the bondholders by the increases in dividend rate, claim dilution, asset substitution and underinvestment. The only way bondholder can limit the action to benefit shareholders is to draft a bond covenants, an agreement to limit the firm on investment, financing, production, dividend payout and etc.

## 2.4. Theoretical Determinants of Bank Capital Structure

Following from the above theoretical standpoints, a number of empirical studies have identified firm-level characteristics. As a result of these studies, some broad categories of capital structure determinants have emerged. Titman and Wessels (1988), and Harris and Raviv (1991), however, point out that the choice of suitable explanatory variables is potentially debatable. In this study, to identify the determinant factors and which of the capital structure theories is applicable in the Ethiopian Commercial Banking context, the researcher have concentrated on 6(six) key variables as identified in studies by Titman and Wessels (1988) in USA, Ashenafi (2005) in Ethiopia, Buferna et al (2005) in Libya, Rajan and Zingales (2006) in G7 countries, Gropp and Heider (2007) in developed countries, Octavia and Brown (2008) in developing countries, Al-Dohaiman (2008) in Saudi Arabia and Mintesinot (2010) in Ethiopia (Tigray Region). The selected six variables are Profitability, Collateral value (Tangibility), Size, Growth, Age of the Firm and Tax. However, there is 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. In this section, therefore the discussion involves the viewpoints of the capital structure theories about the effect of these attributes on leverage ratio from the view of different prior empirical researches.

## I. PROFITABILITY

One of the main theoretical controversies is the relationship between leverage and profitability of a firm. Profitability is a measure of earning power of a firm. The earning power of a firm is the basic concern of its shareholders. The effect of profitability on leverage was well explained by the "pecking order" theory that was suggested by Myers (1984). According to this theory, firm has an ordered preference for financing whereby they prefer retained earnings as their main source of funds for investment which is followed by debt. The last resort sought by a firm would be external equity financing. The reason for this ranking was that internal funds were regarded as 'cheap' and not subject to any outside interference. External debt was ranked next as it was seen cheaper and having fewer restrictions than issuing equity and the issuance of external equity is seen as the most costly way of financing a firm. Therefore, when firms which was profitable is seen to have more retained earnings and choose to have lower leverage, hence a negative relationship between profitability and leverage is expected.

However, according to the static trade-off theory, high profitability level gives high level of borrowing capacity. This situation promotes the use tax-shield. Firms normally have to pay taxes on their profits. To avoid this, they prefer to take more debt in their capital structure as interest payments on debt are generally tax deductible. Agency costs theories also predict that profitable firms would take more debt in their capital structure to control the activities of managers. Hence, the more profitable a firm is, the more debt it will have in its capital structure. Thus, the trade-off theory hypothesizes a positive relationship between profitability and debt level (Frank and Goyal, 2003).

## II. COLLATERAL VALUE OF ASSETS

Collateral value of assets, also known as Asset Composition or Tangibility; are those assets that creditors can accept as security for issuing the debt. In an uncertain world, with asymmetric information, the asset structure of a firm has a direct impact on its capital structure since a firm's tangible assets are the most widely accepted sources for the bank borrowing and secured debts. If banks have imperfect information regarding the behavior of the firm, firms with few tangible assets find it difficult to raise funds via debt financing. The type of assets the firm holds plays a significant role in determining that firm's capital

structure. The reason can be that when a large fraction of the firm's assets is tangible, assets can serve as collateral, which diminishes the risk of the lender suffering agency costs of debt.

Harris and Raviv (1991) predicts that firm with higher liquidation value will have more debt. On the other hand, based on the previous research by Titman and Wessels (1988) argue that the ratio of fixed to total assets (tangibility) should be an important factor for leverage. The tangibility of assets represents the effect of the collateral value of assets of the firm's gearing level. As such, firms with a higher proportion of tangible assets are more likely to be in a mature industry thus less risky, which affords higher financial leverage.

Findings by Rajan and Zingales (1995) are consistent with the Static trade-off theory saying that tangible assets are appropriate for the purpose of raising debt since it act as good collateral. It also seems to reduce the cost of financial distress. Concluding this, firms with large ratios of tangible assets would be expected to raise more debt. On the other hand, the pecking order theory stretch that firms with few tangible assets faces larger asymmetric information problems and will therefore tend to raise more debt over time and become more levered (Frank and Goyal, 2003).

## III. SIZE OF THE FIRM

Size is one of the most widely accepted determinants in research of capital structure. Relationship between size and leverage is mixed. Researchers who focus on bankruptcy cost (static trade-off theory), they justify the positive relationship between size and financial leverage like this: as large firms are more diversified, have low transaction costs for issuing new equity, and probability of bankruptcy for large firms is less than smaller firms therefore size positively relate to leverage.

Theories based on asymmetric information, state that large firms have to inform more to their investors therefore they prefer equity over debt. Therefore size and leverage holds negative relationship between them. Pecking order theory also agrees on negative relationship.

Furthermore, in the research made by Rajan and Zingales (1995), indicate that including size in their cross sectional analysis, they found that the effect of size on equilibrium leverage is

more ambiguous. Thus, larger firms tend to be more diversified and because of that, size may then be inversely related to the probability of bankruptcy.

## IV. GROWTH

The relationship between growth opportunities and the debt ratio is also quite conflicting. The Trade-off theory predicts that firms with more growth opportunities will have less debt as there is less need for the disciplining role of debt. Firms that have growth opportunities would prefer to retain debt capacity as they might need to borrow in the future. Further, growth opportunities are capital assets that add value to a firm but cannot be collateralised and do not generate current taxable income (Titman and Wessels, 1988). For this reason, the arguments put forth suggest a negative relationship between debt and growth opportunities. However, Benito (2003) proposes the opposite. If firms have growth opportunities, then they require more funds to grow. Given that internal resources are not sufficient, firms would then turn to external sources of finance, which would lead to a higher debt level in firms.

Generally, according to the trade-off theory, firms experiencing large growth would raise less debt since the value of their growth opportunities in case of bankruptcy is close to zero. On the other hand, the pecking order theory stretches that small firms faces larger information asymmetries and therefore raise more debt. In order to minimize such asymmetries, firms with high growth will seek to issue debt. Since high growth firms traditionally have higher market-to-book ratios this measure will be used as a proxy (Frank and Goyal, 2003).

## V. AGE OF THE FIRM

Age of the firm is a standard measure of reputation in capital structure models. As a firm continues longer in business, it establishes itself as an ongoing business and therefore increases its capacity to take on more debt; hence age is positively related to debt. Before granting a loan, banks tend to evaluate the creditworthiness of entrepreneurs as these are generally believed to pin high hopes on very risky projects promising high profitability rates. If the investment is profitable, shareholders will collect a significant share of the earnings, but if the project fails, then the creditors have to bear the consequences (Myers, 1977). To overcome problems associated with the evaluation of creditworthiness, Diamond (1989) suggests the use of firm reputation. He takes reputation to mean the good name a

firm has built up over the years; the name is recognized by the market, which has observed the firm's ability to meet its obligations in a timely manner. Directors concerned with a firm's reputation tend to act more prudently and avoid riskier projects in favor of safer projects, even when the latter have not been approved by shareholders, thus reducing debt agency costs.

Generally, according to Mintesinot (2010), as firms became aged, the long years of track record will enable them to easily convince creditors and also will expertise in finding alternative credit source cost effectively or in favorable terms while going for debt capital.

## VI. TAX-SHIELD

Numerous empirical studies have explored the impact of tax-shield on corporate financing decisions in the major industrial countries. Some are concerned directly with tax policy, for example: DeAngelo and Masulis (1980), MacKie-Mason (1990) and Graham (2000). DeAngelo and Masulis (1980) show that there are other alternative tax shields such as depreciation, research and development expenses, investment deductions, etc., that could substitute the fiscal role of debt. MacKie-Mason (1990) studied the tax effect on corporate financing decisions and provided evidence of substantial tax effect on the choice between debt and equity. He concluded that changes in the marginal tax rate for any firm should affect financing decisions. When already exhausted (with loss carry forwards) or with a high probability of facing a zero tax rate, a firm with high tax shield is less likely to finance with debt. The reason is that tax shields lower the effective marginal tax rate on interest deduction. On the other hand, Graham (1999) concluded that in general, taxes do affect corporate financial decisions, but the magnitude of the effect is mostly "not large".

## 2.5. Empirical Evidences of Determinants of Capital Structure

### *2.5.1. In Developed Countries*

After the influential introductory paper on capital structure by Modigliani and Miller, there were quite a number of researches directed towards finding the determinants of capital structure choice. Research on the determinants of capital structure initially was aimed at mainly in the United States' firms. One of the classical researches was carried out by Titman and Wessels (1988); where they studied the theoretical determinants of capital structure by examining them empirically. The theoretical attributes namely; asset structure, non-debt tax shields, growth, uniqueness, industry classification, firm size, earnings volatility and profitability were tested to see how they affect the firm's debt-equity choice. The results indicated consistencies with the theories of capital structure for the factors affecting capital structure choices of firms. One of the few interesting conclusion drawn from the studies in US include the negative relationship of debt to "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. The study of Titman and Wessels, however, did not provide strong empirical support on variables like non-debt tax shields, volatility, collateral value and future growth.

As stated previously, there were many papers written by research scholars on capital structure choices that are mostly based on empirical data of firms in the United States only. To broader the understanding of capital structure models, Rajan and Zingales (1995) have attempted to find out whether the capital structure choices in other countries is based on the similar factors of those influencing capital structure of U.S firms. For this purpose, the accounting data and monthly stock prices for five years, from 1987 till 1991 were collected from the international financial database all the G7 countries; namely the U.S, Japan, Germany, France, the U.K, Italy and Canada. Banks and insurance companies were eliminated from the sample collected as their leverages are affected by government regulations.

Four factors; tangibility of assets, growth, firm size and profitability were tested to see its influences on leverage. A cross–sectional basic regression model of leverage was developed with four of the factors mentioned above as independent variables. Rajan and Zingales noted that across the countries, the asset tangibility was positively correlated with leverage for all

the countries as theory supported the notion that firms having more fixed assets in their assets mix will use that as collateral to get more loans or debt. The market to book ratio seemed to be negatively correlated with leverage except for Italy. Having high market value of the stocks would enable firms to issue more stocks and not seeking debt. Size of firm was positively correlated while profitability was negatively correlated with leverage in all countries except Germany. As a conclusion, this paper found that at an aggregate level, firm leverage was fairly similar across the G-7 countries. This study also pointed out some avenue for future research especially on the unbiased sample selection, the actual determinants of capital structure and deeper consideration of institutional influences.

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

### *2.5.2. In Developing Countries*

There were many empirical researches undertaken by scholars on capital structure choices in the developed nations. But, there were not many research directed towards developing countries that saw the applicability of the theories of capital structure generated from the developed nations. Booth et al. (2001), Maghyereh (2005), Amidu (2007), Abor (2008), and Bas et al. (2009) were among the scholars who have studied the capital structure issue in the developing nations. One of the prominent studies was done by Booth et al. (2001). They have undertaken an interesting study to see whether the capital structure theory could also be applicable in the developing countries irrespective of different institutional structures. The readily available balance sheets and income statements were collected by the researchers from the International Finance Corporations (IFC) for the largest companies in 10 developing countries, namely; India, Pakistan, Thailand, Malaysia, Turkey, Zimbabwe, Mexico, Brazil, Jordan and Korea. Several variables were tested and analyzed to explain capital structure determinants by considering the impact of taxes, agency conflicts, financial

distress and the impact of informational asymmetries. The variables mentioned include tax, business risk, asset tangibility, sales, return on assets and market-to-book ratio. A basic cross regression model of three different measures of firm's debt ratio against those variables was developed.

From their analysis, the authors have concluded that the variables that explained the capital structures in developed nations were also relevant in the developing countries irrespective of differences in institutional factors across these developing nations. The same types of variables, which affect developed nations, were significant in developing nations too. This research supports the argument of asset tangibility in financing decisions which indicates that firm's long-term debt ratio increases while total-debt ratio decreases as more tangible the asset mix becomes. It is interesting to note that the estimated empirical average tax rate does not affect the financing decisions except for becoming as a proxy for profitability. The research also indicated that knowing the nationality of the firm is at least important as knowing the size of independent variables for both the total and long-term book debt ratios. The authors have outlined their recommendation for further studies or research in this area with an increase in the quality international database. They too suggested that a theoretical model to be developed to study the direct link between profitability and capital structure choices.

One of the latest studies was conducted by Bas et al. (2009). This paper examined the determinants of capital structure decisions of firms in developing countries collecting secondary data for 11,125 firms from World Bank for 25 developing countries. They discussed about capital structure decisions of firms in developing markets covering countries from different regions. They analyzed whether the determinants of capital structure show differences among small, medium and large firms. Bas et al. draw the following major conclusions from the results. Regardless of how the firm defines, in accordance with the capital structure theory, the importance of firm level variables, such as tangibility and profitability is confirmed. According to the results, private, small, medium and large firms follow the pecking order on their debt financing decisions. But listed firms prefer equity financing to long term debt financing. Moreover, internal funds do not have an impact on the debt financing decisions. Another major finding was the size effect. They saw different responses from small and large firms towards debt financing. As firms become larger, they become more diversified and risk of failure is reduced as a result of that they can have

higher leverage. According to their results, small and large companies have different debt policies. Due to the information asymmetries, small firms have limited access to finance; therefore, they face higher interest rate costs. Also, they are financially more risky compared to large firms. As a result of that, small companies have restricted access to debt financing which may influence their growth.

### *2.5.3. In Ethiopia*

Most capital structure studies to date are based on data from developed countries. There are few studies that provide evidence from developing countries. The determinants of capital structure of Ethiopian firms are still under-explored area in the literature of financing decision. As per the researcher access and knowledge, the researches on determinants of capital structure so far done in Ethiopian case are by Ashenafi (2005) and Mintesinot (2010). Ashenafi (2005) approached the question of capital structure using data from medium firms in Ethiopia. He take a sample of 50 medium enterprises and made multivariate regression analysis based on financial data of Ethiopian medium enterprises over the period 1991 to 1996 E.C. Variables like non-debt tax shield, economic risk, age of firms, size of firms, tangibility, profitability and growth were regressed against leverage. The outcome of the multivariate regression analysis was consistent with earlier studies for variables like non-debt tax shield, economic risk, size of firms and profitability.

Mintesinot (2010) has undertaken an attention-grabbing study entitled, "The Determinants of Capital Structure: Evidence from Selected Manufacturing Private Limited Companies of Tigray Region, Ethiopia''. Mintesinot have used eight explanatory variables: Tangibility, Profitability, Growth, Age, Uniqueness, Size, Earnings Volatility, and Non-Debt Tax Shields, and were regressed against dependent variables: Total Debt Ratio, Long-Term Debt Ratio and Short-Term Debt Ratio. He also used secondary data collected from audited financial statements of selected 14 companies for the period of five years (2004-2008). After analyzing the data he came up with this result: Tangibility, Firm Growth, Age of the Firm, Firm Size, Earnings Volatility and Non Debt Tax Shields variables are the significant determinants of capital structure in at least one out of the three models for capital structure employed in the study.

## 2.6. Features of Appropriate Capital Structure

The board of directors or the Chief Financial Officer of any business firm should develop appropriate capital structure which is most advantageous for the company. This can be done only when all those factors, discussed above, which are relevant to the capital structure decision are properly analyzed and balanced. Thus, the capital structure should be planned generally keeping in view the interest of the equity share holders and the financial requirements of the company.

As stated by Pandey (2005); an appropriate capital structure should have the following features:

- ***Return:*** the capital structure of the company should be most advantageous. Subject to other considerations, it should generate maximum returns to the shareholders without additional coat.
- ***Risk:*** the use of excessive debt threatens the solvency or liquidity of the company. To the point debt does not add significant risk it should be used as source of capital; or its use should be avoided.
- ***Flexibility:*** the capital structure should be flexible. It should be possible for a company to adapter its capital structure with a minimum cost and delay if warranted by a changed situation. It should also be possible for the company to provide funds whenever needed to finance its profitable activities (projects).
- ***Capacity:*** the capital structure should be determined within the debt capacity of the company, and this capacity should not be exceeded. The debt capacity of a company depends on its ability to generate future cash flows.
- ***Control:*** the capital structure should involve minimum risk of loss to control of the company. The owners of closely held companies are particularly concerned about dilution of control.

## 2.7. Banks Capital Structure

Banks are one of the financial intermediaries that operate in the financial system of the economic system. They act as intermediaries to transfer and allocate money from the savers to needy borrowers. Banks are back bone of the economy and to all business activities. Commercial banks can thus fill the diverse desires of both the ultimate borrowers and lenders of capital. Capital is a fundamental and vital part of the commercial banking industry. Bank capital plays important role in the establishment of the banking entity by providing the necessary funds, and also critical to the perpetuation of the entity in its capacity as ongoing concern. A commercial bank mainly obtains funds from creditors i.e. debt (deposits) ownership (equity) sources. As a result, the basic objective of bank management should be to maximize the value of the owner's investment in the banks.

The capital structure of banks is, however, 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. Gropp and Heider (2007) approached the issue of Bank Capital Structure using 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. Their results provided strong support for the relevance of standard determinants of capital structure on bank capital. Octavia and Brown (2008) investigates whether the standard determinants of capital structure apply to banks in developing countries, whereas Gropp and Heider examine banks from the USA and Europe. The results of Octavia and Brown (2008) suggested that the standard determinants of capital structure do have power in explaining both book capital and market leverage. In their study, they examined whether the standard determinants of capital structure are significant factors in determining the level of bank capital in developing countries. Using a sample of 56 commercial banks from ten developing countries they found the standard determinants of capital structure do have explanatory power in explaining variation in bank capital.

## 2.8. Overview of Commercial Banks in Ethiopia

According to National Bank of Ethiopia, there are five principal events, which may conveniently be taken as dividing Ethiopian banking history into periods. The first event was establishment in 1906 of the Bank of Abyssinia, marking the advent of banking into the

country. The second event was Italian occupation in 1936, when, following liquidation of the Bank of Ethiopia, a broad colonial banking network, extended to encompass all Italian possessions in the Horn of Africa and closely linked with the metropolitan financial system, was set up in the country. The third event was, in 1943, establishment of the State Bank of Ethiopia, marking the rebirth of the Ethiopian independent banking. The fourth event was the revolution of 1974, nationalized companies, the whole credit system being based on the central bank and three state-owned financial institutions. The fifth event was the collapse of socialist regime followed by a financial sector reform and liberalization according to Monetary and Banking Proclamation of 1994.

Monetary and Banking proclamation of 1994 established the national bank of Ethiopia as a judicial entity, separated from the government and outlined its main function. Monetary and Banking proclamation No.83/1994 and the Licensing and Supervision of Banking Business No.84/1994 laid down the legal basis for investment in the banking sector. Consequently shortly after the proclamation the first private bank, Awash International Bank was established in 1994 by 486 shareholders and by 1998 the authorized capital of the Bank reached Birr 50.0 million. Dashen Bank was established on September 20, 1995 as a share company with an authorized and subscribed capital of Birr 50.0 million. 131 shareholders with subscribed and authorized capital of 25.0 million and 50 million founded bank of Abysinia. Wegagen Bank with an authorized capital of Birr 60.0 million started operation in 1997. The fifth private bank, United Bank was established on 10$^{th}$ September 1998 by 335 shareholders. Nib International Bank that started operation on May 26, 1999 with an authorized capital of Birr 150.0 million. Cooperative Bank of Oromia was established on October 29, 2004 with an authorized capital of Birr 22.0 million. Lion International Bank with an authorized capital of Birr 108 million started operation in October 02,2006. Zemen Bank that started operation on June 17, 2008 with an authorized capital of Birr 87.0 million. International Bank Oromia started operation on September 18, 2008 with an authorized capital of Birr 91 million.

According the National Bank of Ethiopia - Fourth Quarter Report of 2008/09, the number of banks operating in the country in 2008/09 reached 13, of which nine are private and the remaining three are state-owned. All the banks, operating in Ethiopia, have 636 branch banks across the country. The total capital of the banking industry reached Birr 1.1 billion

by the end of year 2009. Accordingly, from the total capital of the banking system, the share of private commercial banks is 36.5 percent.

**Table 2.1:** Capital and Branch Network of Banking System in Ethiopia

| *Banks* | *Branch Network (in Number)* | | | | | | | | *Capital (in million of Birr)* | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Quarter III – 2008/2009 | | | | Quarter IV – 2008/2009 | | | | | |
| | Regions | Addis Ababa | Total | % share | Regions | Addis Ababa | Total | % share | Quarter III | Quarter IV |
| **1. Public Banks** | | | | | | | | | | |
| Commercial Bank of Ethiopia | 160 | 49 | 209 | 33.9 | 160 | 49 | 209 | 32.9 | 4561 | 5041 |
| Construction & Business Bank | 16 | 13 | 29 | 4.7 | 17 | 15 | 32 | 5.0 | 196 | 196 |
| Development Bank of Ethiopia | 31 | 1 | 32 | 5.2 | 31 | 1 | 32 | 5.0 | 1949 | 1800 |
| Total Public Banks | 207 | 63 | 270 | 43.8 | 208 | 68 | 273 | 42.9 | **6706** | **7037** |
| **2. Private Banks** | | | | | | | | | | |
| Awash International Bank | 29 | 31 | 60 | 9.7 | 29 | 31 | 60 | 9.4 | 550 | 555 |
| Dashen Bank | 26 | 26 | 52 | 8.4 | 28 | 26 | 54 | 8.5 | 676 | 815 |
| Abyssinia Bank | 20 | 25 | 45 | 7.3 | 22 | 25 | 47 | 7.4 | 421 | 421 |
| Wegagen Bank | 26 | 23 | 49 | 7.9 | 26 | 23 | 49 | 7.7 | 647 | 656 |
| United Bank | 15 | 24 | 39 | 6.3 | 15 | 26 | 41 | 6.4 | 425 | 449 |
| Nib International Bank | 16 | 28 | 44 | 7.1 | 17 | 28 | 45 | 7.1 | 580 | 581 |
| Cooperative Bank of Oromiya | 22 | 3 | 25 | 4.1 | 23 | 3 | 26 | 4.1 | 152 | 155 |
| Lion International Bank | 11 | 9 | 20 | 3.2 | 11 | 9 | 20 | 3.1 | 191 | 192 |
| Zemen Bank | 0 | 1 | 1 | | 0 | 1 | 1 | 0.2 | 98 | 100 |
| Oromiya International Bank | 8 | 4 | 12 | 0.0 | 16 | 4 | 20 | 3.1 | 112 | 121 |
| Total Private Banks | 173 | 174 | 347 | 56.2 | 187 | 176 | 363 | 57.1 | **3852** | **4045** |
| Grand Total Banks | 380 | 237 | 617 | 100 | 395 | 241 | 636 | 100 | **10558** | **11082** |

***Source:*** *National Bank of Ethiopia - Fourth Quarter Report of 2008/09*

Although the very few earlier studies have a tremendous contribution to the theory of capital structure, they were limited to the non-banking institutions of the countries. Among all types of firms banks in developing countries are working in such not well-developed financial system, hence they may pay little attention to practice capital structure theory for their related decision. So that, given the unique financial features of Ethiopian commercial banks and the environment in which they operate, there is a strong ground for separate study on capital structure determinants of commercial banks in Ethiopia.

# CHAPTER 3

# RESEARCH METHODOLOGY

*This chapter highlights the methodology of the study and comprises study design, sampling design, data source and collection, data analyzing method and the description of applied regression model. Here, the definitions and measurement of the variables are well defined.*

## 3.1. Study Design

This research presents an empirical analysis of determinants of capital structure of commercial banking sector in Ethiopia with most recent available data. It is an explanatory research and has employed a quantitative method. A multivariate regression model was used to analyze the data collected from the financial statements of commercial banks operating in Ethiopia which have an age 10 years and above. Based on the regression outputs, test of the data used and hypotheses; and analysis of the result were made. The analyses are presented by using descriptive approach.

## 3.2. Sampling Design

For fair and uniform comparison and to obtain valid results, only commercial banks are selected. In other words, the reason why commercial banking sector is chosen is: Firstly, commercial banking business is emerging and also flourishing in Ethiopian economy where the literature on determinants of capital structure is limited. Secondly, the commercial banks share common attributes in accounting practices, corporate governance and corporate control. As a result, Development (DBE), Construction and Business (CBE) and other banks are not considered due to their specialized business objectives.

Sample of seven commercial banks are selected from the population of 11 commercial banks. It represents 64 percent of the existing commercial banks. In other words, the entire population of commercial banks that exists, at least, for the last ten years (2000-2009) is selected and secondary data was collected from their 10 years' financial statements. Therefore, pooling the cross sectional data of 10 years for 7 commercial banks, there are total 70 (seventy) observations in the regression analysis. For this reason, using purposive

sampling, the selected banks are Commercial Bank of Ethiopia, Dashen Bank, Awash International Bank, Bank of Abysinya, Wegagen Bank, United Bank and Nib International Bank.

## 3.3. Data Source and Collection

The researcher has approached exclusively secondary sources of data, audited financial statements (Balance sheets and income statements), of seven commercial banks aged ten years and above and have been operating in the Ethiopian economy for the specified time period.

Though some of the sampled commercial banks have an experience of greater than ten years, the researcher has taken secondary data from their financial statements that belong or correspond to only the past ten consecutive years. On top of this, the data gathered is reliable in that it is collected from a supervisory bank, the National Bank of Ethiopia. Furthermore, selected explanatory attributes and used regression model have taken from most prominent and recent research studies in the area of capital structure.

## 3.4. Method of Data Analysis

Multivariate Ordinary Least Square (OLS) regression is employed to determine whether there exists a relationship between the multiple independent variables (Determinants = Profitability, Tangibility, Size, Growth, Age, Tax) and the dependant variable (Leverage = Debt to Equity Ratio). One regression equation is used to test the hypotheses constructed in relation to firm-specific determinants (Profitability, Tangibility, Size, Growth, Age and Tax) and the leverage (Debt-Equity Ratio). Data were regressed using STATA 9 application software and the resulted (or obtained) regression outputs are analyzed. On top of this, Ms Excel 2007 was also used to compute and feed convenient data into the STATA employed.

Data used and hypotheses are tested and analysis of the result is made based on the multivariate regression output. First, data is tested to ensure the validity of classical linear regression model (CLRM) assumptions. Second, test of the hypotheses that are previously developed in chapter one were made based on the general estimated model which examined the relationship between the leverage ratio and its determinants for the commercial banks in Ethiopia.

## 3.5. Model Specification

Most of the existing empirical studies on capital structure use linear regression techniques with proxies for the determinant factors used to explain the variation in leverage ratios across firms. The following multivariate ordinary least square (OLS) regression model is specified and used to test the relationship between the financial leverage and its determinate factors in the selected commercial banks.

***General Form of the Equation is:***

**LEVERAGE = Function of (**Profitability, Tangibility, Size, Growth, Age, Tax-Shield**)**

**Therefore the Specified Model is:**

$$\text{Leverage} = \beta_0 + \beta_1(\text{Prof}) + \beta_2(\text{Tang}) + \beta_3(\text{Size}) + \beta_4(\text{Grow}) + \beta_5(\text{Age}) + \beta_6(\text{Tax}) + \varepsilon$$

$$\mathbf{DER} = \beta_0 + \beta_1(\mathbf{PR}) + \beta_2(\mathbf{TN}) + \beta_3(\mathbf{SZ}) + \beta_4(\mathbf{GR}) + \beta_5(\mathbf{AG}) + \beta_6(\mathbf{TXS}) + \varepsilon$$

*Where:*

STANDARD COEFFICIENTS AND ERROR TERM

$\beta_0$ = Coefficient of Intercept (Constant)
$\beta_1$ = Coefficient of Profitability
$\beta_2$ = Coefficient of Tangibility
$\beta_3$ = Coefficient of Firm Size
$\beta_4$ = Coefficient of Growth
$\beta_5$ = Coefficient of Age
$\beta_6$ = Coefficient of Tax-shield
$\varepsilon$ = the Error Term

DEPENDENT VARIABLE

**DER** denotes leverage as a measure of Debt to Equity ratio and is computed as total Liabilities divided by total Stockholders' Equity

INDEPENDENT VARIABLES

**PR** denotes profitability which is measured by using the ratio of operating income over total assets,

**TN** denotes tangibility of assets which is measured by the ratio of fixed assets to total assets,

**SZ** denotes size which is measured by the natural logarithm of total assets,

**GR** denotes Growth which is measured by the percentage change of total assets,

**AG** denotes Age which is measured by the number of years of stay in business operation,

**TXS** denotes Tax-shield that is measured by the product of interest expenses & corporate tax rate.

## 3.6. Definition and Measurement of Variables

In this study, the researcher have used one dependent variable (Leverage = Debt to Equity Ratio) and six explanatory variables such as profitability, tangibility, size, growth, age and tax-shield from most prominent and recent empirical studies. The selection measures for dependent variable (leverage, which is proxy to capital structure) and independent variables (firm-specific) are detailed as follows.

### *3.6.1. Dependent Variable (LEVERAGE)*

Various measures of capital structure have been considered in the literature, however most studies use a measure of leverage, that is a measure of the indebtedness of firms. There is no consensus on what measure of leverage should be used. A number of studies consider debt ratio as a measure of leverage (Shyam-Sunder and Myers (1999), Fama and French (2002) and Frank and Goyal (2002)). In the following previous studies such as Rajan and Zingales (1995), Booth et al. (2001) and Ashenafi (2005), the researcher considered one measure of leverage which is Debt to Equity Ratio. Debt to Equity ratio is, therefore, given by:

$$\textbf{DEBT TO EQUITY RATIO} = \frac{\text{Total Liability}}{\text{Total Share Holders' Equity}}$$

### *3.6.2. Independent Variables*

#### I. Profitability

Profitability is a measure of earning power of a firm. The earning power of a firm is the basic concern of its shareholders. Profitability is measured in several accepted ways and in this study, profitability is measured as the ratio of operating income to total assets.

$$\textbf{PROFITABILITY} = \frac{\text{Operating Income}}{\text{Total Assets}}$$

#### II. Tangibility

Collateral value of assets, also known as Asset Composition, are those assets that creditors can accept as security for issuing the debt. The tangibility of assets represents the effect of the collateral value of assets of a firm's gearing level. Tangibility is then defined as the ratio of tangible (fixed) assets to total assets.

$$\textbf{TANAGIBILITY} = \frac{\text{Fixed Assets}}{\text{Total Assets}}$$

## III. Size

Size is the measure of how large the firm's operational capacity is. Various studies have used a number of measures to capture the size of firms. Titman and Wessels (1988) and Benito (2003) use the log of total assets to measure size. Similarly, this study also finds that the log of total assets to be an appropriate measure of size.

**SIZE** = *Natural Logarithm of TOTAL ASSETS* = ln(*Total Assets*)

## IV. Growth

Different studies have used varying measures of growth (investment opportunities). Titman and Wessels (1988, used annual percentage increase in total assets as a measure of growth. This study measures growth as a percentage increase in total assets of the commercial banks every year.

**Growth =** % change in Total Assets(TA)= $\frac{(TA_{\text{Current Year}} - TA_{\text{Previous Year}})}{TA_{\text{Current Year}}}$ x 100%

## V. Age

Reputation of the firms can be measured by the age of the firms. When a company exists longer in business (which is represented by variable age), it usually creates a reputation especially in the mind of creditors by fulfilling its payment obligations. This reputation was known in the market and makes it easier to get debt financing. Age is measured by the number of years each bank stays in business.

**AGE** = *Number of years in business*

## VI. Tax-Shield

By taking more debt in their capital structure, firms benefit from the 'interest tax shield' that debt provides. This benefit of debt is mainly promoted by the TOT which predicts that the higher the tax amount a firm has to pay, the greater is the debt it will have in its capital structure. Tax-shield (TAX) is calculated as interest expense multiplied by corporate tax rate.

**Tax-Shield** = **(***Interest expense) X (Corporate Tax Rate)*

The definition and measurement of variables that the researcher employed in this research project is summarized in Table 3.1 below.

**Table 3.1: Summary of Variables and their Measures**

| VARIABLES | | DEFINITION | MATHEMATICAL EXPRESSION |
|---|---|---|---|
| Dependent variable | Debt to Equity Ratio | Ratio of Total liability to Total shareholders' equity | $\frac{\text{Total Liability}}{\text{Total Share Holders' Equity}}$ |
| Explanatory Variables | Profitability | Ratio of Operating income to Total assets | $\frac{\text{Operating Income}}{\text{Total Assets}}$ |
| | Tangibility | Ratio of Tangible (fixed) assets to Total assets | $\frac{\text{Fixed Assets}}{\text{Total Assets}}$ |
| | Size | Natural Logarithm of Total Assets | $\ln(\textit{Total Assets})$ |
| | Growth | Percentage increase (change) in total assets | $\frac{(TA_{\text{Current Year}} - TA_{\text{Previous Year}})}{TA_{\text{Current Year}}} \times 100\%$ |
| | Age | Number of years stay in business | *Number of years* |
| | Tax-Shield | Measured with the product of interest expense and corporate tax rate | *(Interest expense) X (Corporate Tax Rate)* |

# CHAPTER 4

# RESULTS AND DISCUSSIONS

*This Chapter presents the results of the regression model and their corresponding discussions. Prior to the analysis of regression model, test of CLRM assumptions have been made followed by the correlation and descriptive analysis. It also presents the analysis of the collected empirical data, portrays the results, and explains the determinants of capital structure in the cased commercial banks in Ethiopia.*

## 4.1 Data Testing

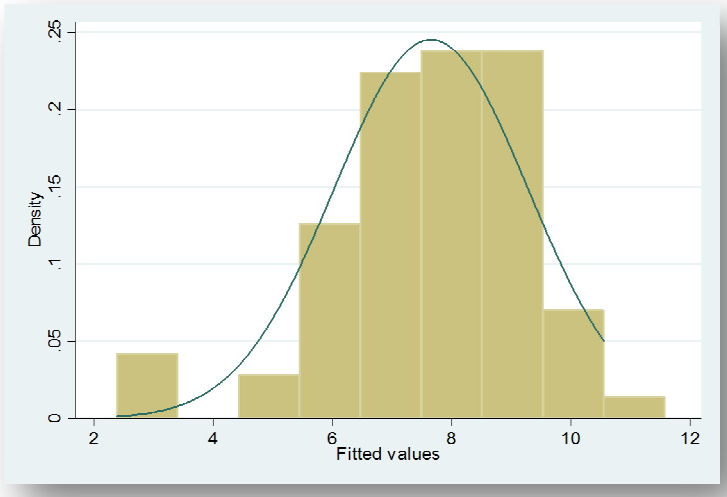
The five most critical assumptions related to CLRM of pooled-cross sectional data are tested in the following sub-sections. Normality, multicollinearity, heteroskedasticity, outliers' detection and model specification tests have been made to make the data available give reliable result and make the model fit the data. These assumptions were required to be tested because the estimation technique, Multivariate Ordinary Least Squares (OLS), has a number of desirable properties. Hence, the hypothesis testing regarding the coefficient estimates could validly be conducted.

### *4.1.1 Test of Normality*

Normality test of data is applied to determine whether a data is well-modeled by a normal distribution or not, and to compute how likely an underlying random variable is to be normally distributed. The best way to evaluate how far the used data are from Gaussian (normal) is to look at a graph and see if the distribution grossly deviates from a bell-shaped normal distribution. Therefore, graphical (histogram and dot plot) and non-graphical (skewness/ kurtosis and Shapro-Wilk W ) tests of normality are used to test normality.

The histogram presented in graph 4.1 provides useful graphical representation of the data. The bell-shaped black line on the histograms represents the "normal" curve. Notice how the data for fitted values are normal. But also, it can be seen that there are few outliers which have insignificant difference from the standard normal curve. Therefore, the residuals are normally distributed and do not have potential problems on the specified model.

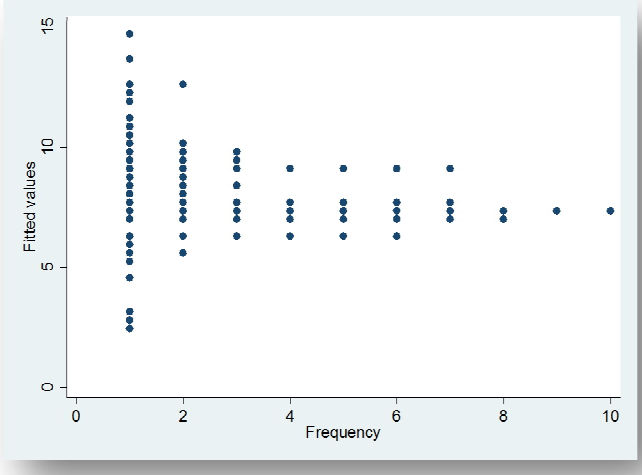
**Graph 4.1: Graphical Test of Normality Using Histogram**




**Source:** *Researcher's own computation based on the financial statements*

Furthermore, the STATA generated dot plot result on Graph 4.2, shown below, also witnessed that the data is normally distributed.

**Graph 4.2: Dot Plot Showing Normal Distribution of Data**




**Source:** *Researcher's own computation based on the financial statements*

Graphical representations like histogram provide no hard evidence on how much the fitted values deviate from the normal values (degree of non-normality). It is also mandatory to see on the non-graphical tests of normality which are usually used by researchers. The Kolmogorov-Smirnov test (K-S) and Shapro-Wilk W tests are also used to test normality of the data.

Table 4.1 shows the result of the Kolmogorov-Smirnov test for normality. Theoretically, if the test is not significant, then the data are normal, so any value above 0.05 indicates normality. On the other hand, if the test is less than 0.05 which proves significance, then the data are non-normal.

**Table 4.1: Skewness/ Kurtosis Tests for Normality**

**Skewness/Kurtosis tests for Normality**

| Variable | Pr(Skewness) | Pr(Kurtosis) | adj chi2(2) | joint **Prob>chi2** |
|---|---|---|---|---|
| resid | 0.223 | 0.091 | 4.42 | **0.1097** |

**Source:** *Researcher's own computation based on the financial statements*

Practically, in this study Skewness/ Kurtosis test shown in Table 4.1, *p*-value is found to be 0.1097 (greater than 0.05) accepting the null hypothesis that indicates the residual values are normally distributed.

Shapiro-Wilk W test was the other test performed to test normality. The result of Shapro-Wilk W test shown in Table 4.2 also exemplified that the p-value is not less than 0.05 and thus, the error terms of the model are normally distributed.

**Table 4.2: Shapiro-Wilk W Test for Normality**

| Variable | Obs | W | V | z | Prob>z |
|---|---|---|---|---|---|
| residual | 70 | 0.96135 | 2.379 | 1.885 | **0.05973** |

**Source:** *Researcher's own computation based on the financial statements*

### *4.1.2 Test of Multicollinearity*

Multicollinearity means that there is linear relationship between explanatory variables which may cause the regression model biased (Gujarati, 2003, pp342). In order to examine the possible degree of multicollinearity among the explanatory variables, pair-wise correlation matrixes of the selected variables (STATA output of the multicollinearity) are shown in Table 4.3. Variable Inflation Factor (VIF) technique is also employed to detect the multicollinearity problem and strengthen our analysis.

**Table 4.3: Pair-Wise Correlation Matrix between Explanatory Variables**

| | PR | TN | SZ | GR | AG | TXS |
|---|---|---|---|---|---|---|
| | | | | | | (obs=70) |
| PR | 1.0000 | | | | | |
| TN | -0.1139 | 1.0000 | | | | |
| SZ | 0.0220 | -0.4334 | 1.0000 | | | |
| GR | 0.3840 | -0.0647 | -0.3067 | 1.0000 | | |
| AG | -0.1124 | -0.3512 | 0.8504 | -0.4387 | 1.0000 | |
| TXS | -0.0818 | -0.3619 | 0.8520 | -0.4155 | 0.9394 | 1.0000 |

**Source:** *Researcher's own computation based on the financial statements*

In Table 4.3, it can be seen that there is no strong pair-wise correlation between the explanatory variables (PR, TN, SZ, GR, AG and TXS) except for age and tax-shield, size & age, and size & tax-shield. As a rule of thumb, inter-correlation among the independents above 0.80 signals a possible multicollinearity problem (Gujatati, 2003). However the given high correlation is acceptable because long aged firms tend to have high total assets (size) and benefit from the tax paid on their bigger interest expense. As concluding analysis, almost all variables have low correlation power and this implies no multicollinearity problem in the explanatory variables selected to determine capital structure of commercial banks in Ethiopia.

Multicollinearity can also be identified by the Variance Inflation factor (VIF) technique, which is a statistic calculated for each variable in the model. Theoretically, a VIF greater than 10 may suggest that the concerned variable is multi-collinear with others in the model and may need to be excluded from the model. Hence, the VIF result in Table 4.4, as none of the VIFs is excessively high, suggests that there is no perfect or strong collinearity between the explanatory variables.

**Table 4.4: Variable Inflation Factor (VIF) Technique to Detect Multicollinearity**

| Variable | VIF | 1/VIF |
|---|---|---|
| AG | 9.68 | 0.103350 |
| TXS | 9.37 | 0.106733 |
| SZ | 4.38 | 0.228229 |
| GR | 1.52 | 0.658513 |
| TN | 1.31 | 0.765557 |
| PR | 1.22 | 0.817532 |
| **Mean VIF** | **4.58** | |

**Source:** *Researcher's own computation based on the financial statements*

### 4.1.3 Test of Heteroskedasticity

Heteroskedasticity is a systematic pattern in the errors where the variances of the errors are not constant (Gujarati, 2003 p387). Heteroskedasticity makes ordinary least square estimators not efficient because the estimated variances and covariance of the coefficients ($\beta_i$) are biased and inconsistent and thus, the tests of hypotheses are no longer valid. In this study, the non-graphical methods of Cook-Weisberg Test and White's Test of testing heteroskedasticity are used and the results obtained are presented in Tables 4.5 and 4.6.

**Table 4.5: Breusch-Pagan / Cook-Weisberg test for Heteroskedasticity**

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

             chi2(1)      =   0.77
             Prob > chi2  =   0.3809
```

**Source:** *Researcher's own computation based on the financial statements*

The insignificant result from the Cook-Weisburg test, as portrayed in table 4.5, indicates that the regression of the residuals on the predicted values reveals insignificant heteroskedasticity.

Furthermore, White's test was also applied to test the presence of heteroskedasticity. White's test tests the null hypothesis that the variance of the residuals is homogenous. Therefore, if the p-value is very small, we would have to reject the null hypothesis.

**Table 4.6: Cameron & Trivedi's Decomposition of IM-Test**

| Source | chi2 | df | p |
|---|---|---|---|
| Heteroskedasticity | 24.30 | 27 | 0.6136 |
| Skewness | 6.73 | 6 | 0.3462 |
| Kurtosis | 0.46 | 1 | 0.4992 |
| Total | 31.49 | 34 | 0.5912 |

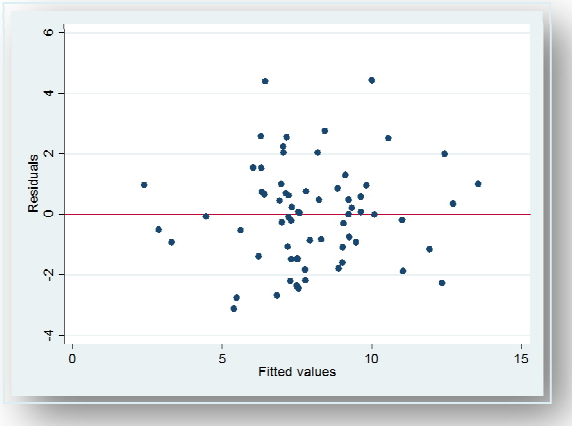
**Source:** *Researcher's own computation based on the financial statements*

The STATA result of white's test shown in Table 4.6 also illustrates that there is insignificant heteroskedasticity problem with the dataset.

### 4.1.4 Outliers' Detection

Heteroskedasticity can also arise as a result of the presence of outliers (Gujarati, 2003 p390). Outliers are extreme values as compared to the rest of the data and are defined by the size of the residual in an OLS regression where all of the observations are used. Outlier detection involves the determination whether the residual value (error = predicted – actual) is an extreme negative or positive value. The OLS estimates are influenced by one or several residuals. Plotting the residual versus the fitted values can determine which errors are large, after running the regression. Here, Graph 4.3 shows the plot of residual versus the fitted values in the study.

**Graph 4.3:** Graph of Residuals verses Fitted Values




**Source:** *Researcher's own computation based on the financial statements*

Looking at the plot, residual versus the fitted values graph, it can be concluded that there are no significant outliers that means the residual values do not have extreme negative or positive value.

Also by predicting standardized residuals using STATA software, it can be seen whether the outliers exist and influence the OLS estimates. As Robert (2006) indicated and recommended the use of standardized residuals, if the standardized residuals have values in excess of 3.5 and -3.5, they become outliers and affect the regression results. As seen in the STATA output in **Appendix 1**, the standardize outliers are calculated, listed and tabulated. Accordingly, comparing the result with the standard, there are no values greater than 3.5 and less than -3.5. Therefore, there are no outliers in our dataset which create heteroskedasticity problem to the model.

### 4.1.5 Test of Model Specification

A typical specification error occurs when the estimated model does not include the correct set of explanatory variables. This specification error takes two forms omitting one or more relevant explanatory variables or including one or more irrelevant explanatory variables. Either form of specification error results in problems with OLS estimates. Therefore, the model is tested whether it is specified correctly or not, and then after, to estimate the regression model properly. In this study, two methods (Ramsey RESET test and Link test) are used to detect specification errors. RESET is used omitted variables and Link test is used for specification error.

#### 4.1.5.1 Ramsey RESET Test for Omitted Variables

RESET stands for *Regression Specification Error Test* and was proposed by Ramsey in 1969. This test is made on the basis of null hypothesis that says "model has no omitted variables".

**Table 4.7: RESET Test for Omitted Variables**

| Ramsey RESET test using powers of the fitted values of DER | |
|---|---|
| $H_o$: model has no omitted variables | |
| F(3, 60) = | 1.52 |
| Prob > F = | 0.2174 |

**Source:** *Researcher's own computation based on the financial statements*

The RESET result, shown in Table 4.7, fails to reject the null hypothesis of no omitted variables indicating no model specification error. Though the regression result declares that there are no omitted variables in the model, omitted variable bias is hard to detect. But there are obvious indications of this specification error. The best way to detect the omitted variable specification bias is to rely on the theoretical arguments behind the model which base on the following questions. Which variables does the theory suggest should be included? What are the expected signs of the coefficients? Are there omitted variables that most other similar studies include in their model?

Apart from the Ramsey RESET test positive result, the researcher has tried his best to include all variables that the theories of capital structure suggest, most similar studies included in their model and relevant determining variables to commercial banks financing decision.

#### *4.1.5.2 Link Test for Specification of DER Model*

Link Test performs model specification test for single-equation models. Link test is based on the null hypothesis that the regression is correctly specified, Link test assumes one should not be able to find any additional independent variables that are significant except by chance if the model is correctly specified. In this study, to test the model specification using STATA, the link test method generated two new variables. These variables are the variable of prediction (_hat) and the variable of squared prediction (_hatsq). The model was then refitted (regressed) using these two variables as predictors.

Theoretically, the variable of prediction (_hat) should be significant since it is the predicted value and the variable of squared Prediction (_hatsq) should not be significant, because if the model is specified correctly, the squared predictions should not have much explanatory power. The RESET result is summarized in Table 4.8.

**Table 4.8: Link test for Specification of DER model**

| Source | SS | df | MS | Number of obs = | 70 |
|---|---|---|---|---|---|
| Model | 357.378816 | 2 | 178.689408 | F( 2, 67) = | 54.31 |
| Residual | 220.42326 | 67 | 3.28989941 | Prob > F = | 0.0000 |
| Total | 577.802076 | 69 | 8.37394313 | R-squared = | 0.6185 |
| | | | | Adj R-squared = | 0.6071 |
| | | | | Root MSE = | 1.8138 |

| DER | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| _hat | 1.427643 | .4427628 | 3.22 | **0.002** | .5438851 | 2.311402 |
| _hatsq | -.0252299 | .0254955 | -0.99 | **0.326** | -.0761191 | .0256593 |
| _cons | -1.680898 | 1.881871 | -0.89 | 0.375 | -5.437128 | 2.075332 |

**Source:** *Researcher's own computation based on the financial statements*

Practically, our Link test result confirmed that the predicted value, the variable of prediction(**_hat),** is significant variable and the variable of squared Prediction(**_hatsq)** is not. Hence, the null hypothesis is accepted which reveals our model is specified correctly.

## 4.2 Correlation Analysis

Correlation and regression analyses are related in the sense that both deal with relationships among variables. The correlation coefficient is a measure of linear association between two variables. Values of the correlation coefficient are always between -1 and +1. A correlation coefficient of +1 indicates that two variables are perfectly related in a positive linear sense; while a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense. A correlation coefficient of 0, on the other hand, indicates that there is no linear relationship between the two variables. For simple linear regression, the sample correlation coefficient is the square root of the coefficient of determination. The correlation coefficient measures only the degree of linear association between two variables.

The analysis of the relationship between dependent variable (DER) and independent variables (PR, TN, SZ, GR, AG, TXS) is detailed in Table 4.9 as follows using the correlation matrices.

**Table 4.9: Correlation Matrix and their Significance Level of Correlation for Dependent Variable and Independent Variables (obs=70)**

| | DER | PR | TN | SZ | GR | AG | TXS |
|---|---|---|---|---|---|---|---|
| DER | 1.0000 | | | | | | |
| PR | -0.4035 | 1.0000 | | | | | |
| | (0.0005) | | | | | | |
| TN | -0.1951 | -0.1139 | 1.0000 | | | | |
| | 0.0855 | 0.3479 | | | | | |
| SZ | 0.6090 | 0.0220 | -0.4334 | 1.0000 | | | |
| | 0.0000 | 0.8568 | 0.0002 | | | | |
| GR | -0.3291 | 0.3840 | -0.0647 | -0.3067 | 1.0000 | | |
| | 0.0054 | 0.0010 | 0.5945 | 0.0098 | | | |
| AG | 0.5238 | -0.1124 | -0.3512 | 0.8504 | -0.4387 | 1.0000 | |
| | 0.0000 | 0.3540 | 0.0029 | 0.0000 | 0.0001 | | |
| TXS | 0.4438 | -0.0818 | -0.3619 | 0.8520 | -0.4155 | 0.9394 | 1.0000 |
| | 0.0001 | 0.5007 | 0.0021 | 0.0000 | 0.0003 | 0.0000 | |

**Source:** *Researcher's own computation based on the financial statements*

The correlation matrix in Table 4.9 shows that the Debt to Equity Ratio (dependent variable) is correlated at -0.4035 with profitability at 1 percent significance level, at -0.1951 with tangibility at 10 percent significance level, at 0.6090 with bank size at 1 percent significance level, at -0.3291 with growth at 1 percent significance level, at 0.5238 with age at 1 percent

significance level and at 0.4438 with tax-shield at 1 percent significance level. From the regression output, it can be said that the independent variables have a relatively higher relationship (negatively or positively) with dependent variable of the selected banks. Size is found highly positively correlated with leverage at 60.1 percent.

The results also show that size and growth are positively correlated to profitability, while tangibility, age and tax-shield have negative correlation with profitability. This implies that larger commercial banks and growing companies tend to have higher profitability, whereas, profitable commercial banks tend to have less tangible assets.

As concluding analysis, the selected explanatory variables are found to have a strong and significant relationship with the dependent variable. Therefore, the selected independent variables can explain the dependent variable with a considerable degree.

## 4.3 Descriptive Statistics

Table 4.10 demonstrates the summary of descriptive statistics for the variable values used in the sample. The summary of descriptive statistics includes the mean, standard deviation, minimum and maximum of one dependent variable (DER) and six explanatory variables (PR, TN, SZ, GR, AG, TXS) from year 200 – 2009. The data contain sample of seven commercial banks in Ethiopia for the past ten years (2000 – 2009).

**Table 4.10:** Summary of Descriptive Statistics

| Stats | DER | PR | TN | SZ | GR | AG | TXS |
|---|---|---|---|---|---|---|---|
| mean | 8.098302 | .0284346 | .0158626 | 21.62294 | 21.57796 | 15.78571 | 3.23e+07 |
| median | 7.848016 | .0294173 | .013373 | 21.47424 | 21.63315 | 9 | 1.21e+07 |
| sd | 2.893777 | .0139515 | .0090088 | 1.382201 | 9.567882 | 19.49053 | 4.63e+07 |
| variance | 8.373943 | .0001946 | .0000812 | 1.91048 | 91.54437 | 379.881 | 2.14e+15 |
| N | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| range | 12.29123 | .076465 | .0364122 | 6.02939 | 50.83611 | 66 | 2.15e+08 |
| min | 2.272727 | -.0228935 | .0055458 | 18.77835 | 2.140078 | 1 | 350000 |
| max | 14.56395 | .0535714 | .041958 | 24.80774 | 52.97619 | 67 | 2.15e+08 |

**Source:** *Researcher's own computation based on the financial statements*

The descriptive statistics summarized in Table 4.10 are a collection of measurements of two things: *location* and *variability*. Location tells one the central value of the variables (the mean is the most common measure of this). Variability refers to the spread of the data from the center value (i.e. variance, standard deviation).

The *mean* is the sum of the observations divided by the total number of observations. The *median* is the middle value of the total observation. The *standard deviation* is the squared root of the variance and indicates how close the data is to the mean. The *variance* measures the dispersion of the data from the mean. It is the simple mean of the squared distance from the mean. *Count* (N in the table) refers to the number of observations per variable. *Range* is also another measure of dispersion. It is the difference between the largest and smallest values, max minus min. *Min* is the lowest value in the variable. *Max* is the largest value in the variable.

Taking a look at table 4.10, the researcher has discussed the following issues:

- The average (mean) debt to equity ratio (DER) of Ethiopian commercial banks is found to be 8.10 and this indicates commercial banks are financed (leveraged) with debt at approximately eight times greater than equity option. That is the banks financing decision is inclining to deposit mobilization than to the equity financing. Even the standard deviation show that the banks have, in the past ten years, focused more on debt financing than on equity financing.
- The average annual profitability of the banks under investigation is found to be 2.8 percent. Since profitability was measured by the ratio of operating income to total assets, the maximum attained average profitability rate is 5.4 percent whereas the lowest recorded average profitability rate is -2.2 percent and the dispersion other values of profitability rate is 0.02 percent which indicates the individual banks have constant profitability rate every year.
- The mean of asset composition is found to be 1.6 percent indicating that the commercial banks fixed assets represent only 1.6 percent of the total assets. Due to the nature of the business banks have high current assets, which is equal to approximately 98.4 percent. Tangibility of the commercial banks operating in Ethiopia, as measures by the ratio of fixed assets to total assets, ranges from 0.6 percent to 4.2 percent.

- The banks' total assets have an average growth rate of 21.6 percent for the ten years of study period. The asset growth ranges approximately from 2.1 percent (minimum growth rate) to 53 percent (maximum growth rate) which in turn strengthen the acceptance of value of variance of the variable.
- The age of the banks vary from 1 year to 67 years and the older one is the state owned bank, Commercial Bank of Ethiopia (CBE). The variance of age variable reveals that the age values are highly dispersed. Similarly the size was recorded high at CBE which accounts for the maximum value of Birr 59,411,000,000.00 and is low at United Bank accounting for the minimum value of Birr 143,000,000.00. There is large variation of bank size in the sample of commercial banks where the largest bank is more than 415 times as large as the smallest bank.
- Lastly, during the ten years of the study period, the tax-shield variable values show that the banks have been taking an advantage of tax-shield from the interest payments on debt on behalf of equity shareholders at an average value of Birr 32,300,000.00 every year.

## 4.4 Multivariate Regression Analysis

Prior empirical studies have traditionally used different estimation methods based on the types of data to investigate the determinants of firm's capital structure. The most common method is pooled cross-sectional data analysis. Therefore, it is worth to investigate the extent to which the obtained results are sensitive to the changes in the estimation method. The empirical data of the value of the variables are computed for ten consecutive years (2000 - 2009), using audited financial statements of the selected commercial banks which was collected from National Bank of Ethiopia (NBE). Therefore, pooled cross sectional data computed by multivariate ordinary least square (OLS) regression is carried out in this dissertation to provide a comprehensive analysis about the determinants of capital structure of commercial banks in Ethiopia. The STATA application version 9 was used here to run the multivariate regressions.

Section 4.1 discussed whether the regression model is unbiased or not by running test of classical linear regression model (CLRM) assumptions (normality, multicollinearity, heteroskedasticity, model specification) which suits to the employed pooled cross sectional

data. Though the different tests for heteroskedasticity indicated that there is insignificant heteroskedasticity problem with the data, the data was made 100 percent free from heteroskedasticity problem using the "robust" command of STATA in order to make the model fully unbiased.

**The multivariate linear regression model before estimation was:**

$$DER = \beta_0 + \beta_1(PR) + \beta_2(TN) + \beta_3(SZ) + \beta_4(GR) + \beta_5(AG) + \beta_6(TXS) + \varepsilon$$

The dependent variable is leverage measured in terms of debt to equity ratio (DER) and the explanatory variables are profitability (PR), tangibility (TN), size (SZ), growth (GR), age (AG) and tax-shield (TXS); measured with the most known proxies used in many related studies. The beta values ($\beta_i$) explain how much the variation in the dependent variable is explained by the estimated linear regression model.

The regression result is generated based on the above specified model. Therefore, results of the regression analysis are discussed in relation to each of the independent variables in Table 4.11 and forthcoming paragraphs.

**Table 4.11: Regression Result of DER and the Explanatory Variables**

```
Linear regression                               Number of obs =      70
                                                F(  6,    63) =   16.93
                                                Prob > F      =  0.0000
                                                R-squared     =  0.6129
                                                Root MSE      =  1.8841
------------------------------------------------------------------------------
             |               Robust
         DER |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          PR |   -89.7641   22.63408    -3.97   0.000    -134.9947    -44.5335
          TN |   7.575344   17.38885     0.44   0.665     -27.1735    42.32419
          SZ |   1.950811  0.3299303     5.91   0.000     1.291497    2.610124
          GR | -0.5097882   2.813779    -0.18   0.857    -6.132676      5.1131
          AG |  0.0560336  0.0295697     1.89   0.063   -0.0030567    .1151238
         TXS |   4.62e-08   1.47e-08     3.14   0.003     7.56e-08    1.68e-08
       _cons |  -30.93228    7.00783    -4.41   0.000    -44.93631   -16.92825
------------------------------------------------------------------------------
```

**Source:** *Researcher's own computation based on the financial statements*

*Notes:*

- *On the upper right, there are overall summaries of the 'robust' regression: the number of observations, the F-test for the overall significance, $R^2$ and the square root mean squared error of the residuals.*

☞ *The most important information is presented on the lower pane of the regression output. On the first column, we have the names of the dependent variable (DER) and that of the explanatory variables (PR, TN, SZ, GR, AG and TXS) and _cons is the constant term (intercept) of the regression. In the second column* (Coef.)*, the values of the coefficients* ($\beta_0$, $\beta_1$, $\beta_2$, $\beta_3$, $\beta_4$, $\beta_5$, $\beta_6$) *and error term* ($\varepsilon$) *are listed. The third column* (Std. Err.) *indicates the standard errors associated with coefficients. The forth column* (t) *lists down the t-statistics used in testing whether a given coefficient is significantly different from zero. The fifth column* (P>|t|) *shows the two-tailed p-values used in testing the null hypothesis making the coefficient zero. Finally, the confidence interval for the coefficient is given in the last two columns.*

Table 4.11 presents the regression results of determinants of debt to equity ratio (DER) of commercial banks in Ethiopia between 2000 and 2009. The regression summary statistics pane (Table 4.11 upper right) results and analyses are discussed as follows.

The R squared is 0.6129 which indicates that about 61.29 percent of the variability of debt to equity ratio is explained by the selected firm-specific factors (Profitability, Tangibility, Size, Growth, Age and Tax-shield). In other words, about 61.29 percent of the change in the dependent variable is explained by the independent variables that are included in the model. Among the independent variables SZ more reliably predicts DER. This fact can be confirmed by the results of simple regression analysis conducted separately with each independent variable (see **Appendix 2**). The result shows that SZ has 37.09 percent predicting ability of DER while TN has the lowest predicting ability which is 3.81 percent. Adjusted $R^2$ avoid the overestimation effect of adding the other variables to the model. But the model was run using more accurate method (robust regression) and the adjusted $R^2$ is not included in the overall summaries of the robust regression, thus, $R^2$ is treated as an accurate value.

In Table 4.13, the static value of F is `16.93` and it exceeds the critical value of F. Hence, the regression as whole is significant; this means that the six explanatory variables reliably predict leverage. Furthermore, the P-value (significance) is `0.0000` (STATA's way of indicating a number smaller than 0.00005), which also indicates that DER of the selected commercial banks is predicted with almost 99.99 percent probably by PR, TN, SZ, GR, AG and TXS together and shows a statistically significance relationship among them. Therefore, the F-statistics of the regression result `(F(6, 63)=16.93)` and its *p*-value `0.0000` proves there is a significant relationship between the capital structure (leverage) measured in terms

DER and the determinant explanatory variables measured in terms of PR, TN, SZ, GR, AG and TXS. In simple words, the F-statistic of 16.93 suggests that the model fits the data significantly.

**The Estimated Regression Equation:**

$$DER = -30.93 - 89.76PR + 7.58TN + 1.95SZ - 0.51GR + .06AG + 4.62x10^{-08}TXS - \varepsilon$$

The t-statistics show that the explanatory variables such as profitability, size, age and tax-shield appear to be significant. Profitability, size and tax-shield are significant at 1 percent significance level and age is significant at 10 percent significance level.

Profitability and growth are negatively related to debt to equity ratio as indicated by their respective coefficients of -89.7641 and -0.5098. The negative effect of profitability on DER is very strong such that a 1 unit increase in profitability (keeping other variables constant) would decrease the tendency of the commercial banks' debt taking by 89.76 units. However, tangibility, size, age and tax-shield proved positive association with the leverage ratio and are expressed by their coefficients of 7.5753, 1.9508, 0.5098 and 4.62 x $10^{-8}$, respectively.

## 4.5 Hypothesis Testing and Discussion of Results

Table 4.12 presents the summary of the regression results for the equation of Ethiopian commercial banks leverage using the determinants of capital structure as explanatory variables. In this section, the hypotheses formulated in chapter 1 are tested followed by discussion of the results.

Results obtained from analysis, expressed in terms of the signs and statistical significance of the coefficients for the selected six independent variables, are presented in Tables 4.12 and 4.13. The conducted hypotheses testing and discussed results are categorized on the basis of these independent variables and focused on their relationships with capital structure theories.

**Table 4.12: Firm Specific Analysis of Determinants of Capital Structure**

| Independent Variables | Dependent variable Debt to Equity Ratio (DER) | | |
|---|---|---|---|
| | values of the coefficients | t-statistics | Significance level |
| Profitability (PR) | -89.7641 (22.63) | -3.97* (0.000) | Significant at 1% level |
| Tangibility (TN) | 7.575344 (17.39) | 0.44 (0.665) | Insignificant |
| Size (SZ) | 1.950811 (0.33) | 5.91* (0.000) | Significant at 1% level |
| Growth (GR) | -0.5097882 (2.81) | -0.18 (0.857) | Insignificant |
| Age (AG) | 0.0560336 (0.03) | 1.89 (0.063) | Significant at 10% level |
| Tax-Shield (TXS) | $4.62 \times 10^{-08}$ (1.47e-08) | 3.14 (0.003) | Significant at 1% level |
| Number of observations = **70**<br>F-Statistics = **16.93**<br>Prob > F = 0.0000<br>$R^2$ = **0.6129 (61.29%)** | | | |

**Source:** *Researcher's own computation based on the financial statements*

*Notes:*

- *Standard errors associated with the coefficients are in parentheses under the values of coefficients.*
- *P-value of the t-statistics is shown in parentheses under the t-statistics value.*
- *The * symbol indicates highly significant variables*

In addition, to verify if capital structure decisions that are made in the commercial banks in Ethiopia provide empirical support for existing theories, regression results of this study,

summarized in Table 4.12, are compared with the following table, Table 4.13, of summary of hypothesized, expected and observed theoretical signs of independent variables.

**Table 4.13: Hypothesized, Expected and Observed Signs of the Independent Variables**

| Explanatory Variable | Definition | Hypothesized signs | Theoretical signs of explanatory variables based on capital structure theories | | | Observed sign |
|---|---|---|---|---|---|---|
| | | | STT | POT | ACT | |
| **Profitability (PR)** | Ratio of Operating income to Total assets | - | + | - | ? | - |
| **Tangibility (TN)** | Ratio of Tangible (fixed) assets to Total assets | + | + | + | + | + |
| **Size (SZ)** | Natural Logarithm of Total Assets | + | + | - | + | + |
| **Growth (GR)** | Percentage increase (change) in total assets | + | - | + | - | - |
| **Age (AG)** | Number of years stay in business | + | + | - | ? | + |
| **Tax-Shield (TXS)** | Product of interest expense and corporate tax | + | + (short term)<br>- (long term) | ? | ? | + |

**Source:** *Researcher's own computation based on the financial statements & summary of capital structure theories*

***Notes:***

- *The theoretical signs of explanatory variables are presented in summary based on the previous capital structure theories and were used by different researchers such as Titman and Wessels (1988), Haris and Ravive (1991), Buferna et al (2005), Rajan and Zingales (2006), Octavia & Brown (2008), and Mintesinot (2010).*
- **"+"** *indicates that the specified theory suggests a positive relationship between the explanatory variable and leverage.*
- "-" *indicates that the specified theory proposes a negative relationship between the explanatory variable and leverage.*
- **"?"** *indicates that there is no clear prediction.*

### *4.5.1 Hypothesis Testing*

Test of the research hypotheses were made based on the relationship of dependant variable and the explanatory variables. Therefore, the following subsections deal with hypothesis testing and the interpretation of the regression results presented above.

#### I. LEVERAGE WITH PROFITABILITY

Research hypothesis one was formulated for the assessment of the relationship between leverage and profitability based on pecking order theory. Beta coefficient associated with profitability (PR) accepted the first null hypothesis.

In this study, profitability is estimated to be negatively related with bank's leverage ratio and this relationship is found statistically significant at 1 percent significance level. It implies that profitable firms in Ethiopian commercial banking sector maintain low debt to equity ratio. This result is consistent with predictions of Pecking order theory (see Table 4.13) which states that firms prefer to finance first with internal funds before raising external financing. Further this outcome is also consistent with the most previous studies (Titman & Wessels, 1988; Rajan and Zingales, 1995; and Booth *et al.*, 2001). Hence, with highly significance at 1 percent for inverse relationship between profitability and financial leverage, it can be concluded that highly profitable commercial banks in Ethiopia maintain low debt to equity ratio and they utilize more equity source compared to debt for making their capital structure.

#### II. LEVERAGE WITH TANGIBILITY

Research hypothesis two was formulated to estimate the relationship between tangibility and leverage based on static trade-off theory. Beta coefficient associated with Tangibility (TN) accepted the second null hypothesis and proved that there is a positive relationship between tangibility and capital structure of commercial banks in Ethiopia.

In this study, the sign of tangibility variable coefficient is found to be positive, but not statistically significant. This result, tangibility being insignificant variable, contradicts with various previous research findings. However, the observed sign coincides with Static trade-off theory, pecking order theory and agency cost theory (see Table 4.13) that theorize positive relationship between leverage and tangibility. The observed sign implies that firms

with high tangibility tend to finance their investments with external financing and they tend to prefer debt over equity. In general, with exception of the insignificant result, tangibility's observed positive relationship with debt to equity ratio is generally consistent with prediction and assumption that firms with higher ratio of fixed assets serve as collateral for new loans, favoring debt. Accordingly, it fails to reject the hypothesis that tangibility is positively related with leverage.

### III. LEVERAGE WITH SIZE

Research hypothesis three was formulated to estimate the relationship between size and leverage based on static trade-off theory. The result of beta coefficient linked with size (SZ) accepted the third null hypothesis and proved that there a positive relationship between leverage and size of commercial banks.

This study found size to be highly statistically significant at the 1 percent level and have positive impact on the commercial bank's leverage. This suggests that larger commercial banks in Ethiopia tend to have higher leverage ratios and borrow more capital than smaller commercial banks do. To express it in figure, assuming other determining factors constant, for 1 unit increase in size, there is a 1.95 unit positive increase in debt to equity ratio. The observed result is consistent with the result of static trade-off theory (see Table 4.13). Major empirical studies also found a positive relationship between size and leverage. For instance: Titman and Wessels, (1988), Rajan and Zingales, (1995), and Booth *et al.*, (2001) provided the evidence of significant and direct relationship between size and capital structure measure. Since the result of size variable indicated a significant statistics, it is estimated that size does have significant role in making debt ratio and determining the capital structure of Ethiopian commercial banks.

### IV. LEVERAGE WITH GROWTH

Research hypothesis 4 predicted that a positive relationship exists between capital structure and growth, but the regression result of beta coefficient linked to growth (GR) rejected the fourth null hypothesis favoring the alternate hypothesis that infer negative relationship between capital structure and growth variable. The negative result contradicts with POT but supports STT and ACT. To conclude, growth is found to be insignificant factor for deciding the capital structure issues in commercial banking sector in Ethiopia.

## V. LEVERAGE WITH AGE

Research hypothesis five was formulated to estimate the relationship between size and leverage based on static trade-off theory. The result of beta coefficient linked to age variable accepted the fifth null hypothesis and proved the positive relationship between capital structure and age of commercial banks in Ethiopia.

In this study, age is estimated to have significant positive relationship with leverage of commercial banks. The positive relationship is statistically significant at 10 percent significance level. This implies that older commercial banks use more debt than younger or newer ones do. Numerically, the 0.056 coefficient of age variable (making the other variables constant) implies that every additional 1 year increases the leverage measure (DER) by 0.056. This result in turn indicates that older banks have a reputation of credit and build a good relationship with creditors; thus, they have better conditions to obtain debt and younger commercial banks rely more on equity financing, as they are constrained by debt financing. The observed sign coincides with Static trade-off theory but opposes pecking order theory. Accordingly, with 10 percent significance level and direct relationship between age and leverage, it is expected that aged commercial banks in Ethiopia maintain high debt to equity ratio and utilize more debt source compared to equity source.

## VI. LEVERAGE WITH TAX-SHIELD

The last research hypothesis, hypothesis 6, was developed to assess the relationship between leverage and tax-shield. The result of beta coefficient associated with tax-shield variable accepted the sixth null hypothesis and proved that there is a positive relationship between capital structure and tax-shield of commercial banks in Ethiopia.

In this study, TXS is found to have a positive relationship with leverage and is statistically significant at 1 percent level of significance. This result is consistent with Static trade-off theory for short term loan but contradicts with long term loan. Operating in a developing country, most commercial banks in Ethiopia use short term financing due to macroeconomic factors, and the characteristics of the firm. Therefore the positive result, not surprisingly does have consistency only with STT for short term financing because banks are having more advantage from the tax-shields by using more interest paying deposits. Thus, TXS does have positive significant influence on leverage ratio or capital structure of commercial banking sector in Ethiopia.

### 4.5.2 Test of the Consistency of Capital Structure Theories

As presented in chapter two and summarized in Table 4.13, this study followed three capital structure theories: Static trade-off theory, Pecking order theory and Agency cost theory and tried to find out which one explain better the financial decision of the sample commercial banks. All these theories possess different traits to explain the corporate capital structure. Static trade-off theory suggests that optimal capital structure is a trade-off between net tax benefit of debt financing and bankruptcy costs. Firms with high tangible assets will be in a position to provide collateral for debts, so these firms can raise more debt. Larger and high profitable firms maintain their high debt ratio, while firms with high growth rate use less debt financing. Pecking order theory states that firms prefer internal financing to external financing and risky debt to equity due to information asymmetries between insiders and outsiders of firm. Agency cost theory illustrates the financial behavior of firms in context of agent and principal relationship.

Consequently, the hypothesized, expected and observed theoretical signs of explanatory variables are summarized in Table 4.13. As a result, test of the consistency of capital structure relevancy theories in Ethiopian commercial banks is made based on the expected and observed signs of the coefficients of the explanatory variables. Therefore, the following conclusion is made whether capital structure decisions that are made in the commercial banks provide empirical support for the existing theories.

- Profitability is found to be negatively related with bank's leverage ratio. This result is consistent with predictions of POT which states that firms prefer to finance first with internal funds before raising external financing.
- The positive coefficient of relation observed, shown in Table 4.13, between the leverage and tangibility variables provides a realistic evidence for the three theories given that the theories expected a positive relationship between variables. Therefore, tangibility variable supports consistency of STT, POT and ACT with the financing decisions made in Ethiopian commercial banking case.
- Size is found to have positive impact on the commercial bank's financial leverage. Theoretically, STT and ACT suggested that larger firms tend to have better

borrowing capacity relative to smaller firms. Hence, the analyzed result is consistent with the implementation of STT and ACT in Ethiopian commercial banking case.

- ☞ The insignificant and positive relationship result of growth with capital structure contradicts with applicability of POT but supports STT and ACT.
- ☞ The positive and significant relationship between age and leverage strongly supports the STT but go up against POT.
- ☞ As seen in Table 4.13, TXS does have positive significant influence on leverage ratio of commercial banking sector in Ethiopia. This result is consistent with STT for short term loan but contradicts with STT for long term loan. Therefore the positive result, not surprisingly does have consistency only with STT for short term financing because banks are having more advantage from the tax-shields by using more interest paying deposits.

In general, looking at Tables 4.12 and 4.13, it can be concluded that all determinant factors except profitability of capital structure decisions in Ethiopian commercial banks, indicate a strong compliance to the Static trade-off theory. However, the negative effect of profitability to capital structure decision indicates a strong compliance to the Pecking order theory of capital structure. On the other hand, two (tangibility and size) out of six determinants' association with leverage is consistent with Agency cost theory.

# CHAPTER 5

# CONCLUSION AND RECOMMENDATION

*This chapter comprises summaries and conclusions extracted from research findings along with the recommendations that the researcher has developed.*

## 5.1. Summary and Conclusion

This section discusses the summary of findings and conclusions for the research project.

### *5.1.1. Summary of Findings*

The correlation matrix, as depicted in Table 4.9, defined the linear relationship between the selected explanatory variables (profitability, tangibility, size, growth, age and tax-shield) and the leverage measure (debt to equity ratio), the former are found to have strong and significant relationship with the latter. Therefore, the selected independent variables explained the dependent variable with a considerable degree.

From the descriptive statistic (Table 5.10), the average (mean) debt to equity ratio (DER) of the cased commercial banks is found to be 8.10 signifying that they are highly leveraged with debt at approximately eight times greater than equity option. That is, the banks' financing decision is inclining to deposit (or debt) mobilization than to the equity financing.

With regard to the regression results (Table 4.11) of the determinants of debt to equity ratio (DER), R squared is found to be 0.6129 indicating that 61.29 percent of the leverage (debt to equity ratio) variability of the commercial banks in Ethiopia is well explained by the selected firm-specific factors. Also, it confirmed that four of the explanatory variables (profitability, size, age and tax-shield) are the significant firm-specific determinant factors of capital structure in the banks. On the other hand, both profitability and growth variables are found to be negatively related to debt to equity ratio. However, tangibility, size, age and tax-shield variables proved positive relationship with the leverage ratio. Therefore, testing the hypotheses, the regression results of the coefficients of capital structure determining factors went for the acceptance of the first, second, third, fifth and sixth null hypotheses.

In testing the consistency of the capital structure relevancy theories with the capital structure decisions made in the sampled banks, the researcher found that all the suspected determinant factors, except profitability, of capital structure decisions in the commercial banks indicate a strong compliance to the Static trade-off theory. However, the negative effect of profitability on capital structure decision confirmed a strong compliance to the pecking order theory of capital structure. In addition, the signs of tangibility and size are consistent with Agency cost theory predictions.

### *5.1.2. Conclusions*

Capital structure remains an important and significant issue for academicians and corporate managers. This area has been researched by many prominent scholars, namely Modigliani and Miller, Stewart Myers, Stephen Ross, Michael Jensen and William Meckling. However capital structure has extensively been studied in the developed countries, but only few researches focus on developing countries like Ethiopia. In this research project, the main objective is to study the significant firm-specific determinants of capital structure in the context of commercial banks in Ethiopia.

Scholars in trying to understand and decipher capital structure have come up with many theories. Among the famous theories are Modigliani and Miller propositions, Static trade-off, Pecking order and Agency Cost. After reviewing the theories involved in capital structure, Titman and Wessels (1988), Harris and Raviv (1991) and Frank and Goyal (2003) also researched the determinants of capital structure. In this study, firm-specific determinants (internal factors) were examined in the context of Ethiopia.

To achieve the intended goal, the researcher has formulated six hypotheses. To test these hypotheses, total of six variables; namely profitability, tangibility (collateral value of assets), size, growth, age and tax-shield; were selected from renowned previous research works on capital structure. In addition, the researcher has taken ten years (2000-2009) audited annual financial statements of seven commercial banks in Ethiopia. For analysis, this study employed multivariate ordinary least square model. The capital structure of the banks is measured by one aggregate measure of leverage: debt to equity ratio. Therefore, the dependent variable is regressed against the six mentioned explanatory variables.

The regression results of the capital structure model verified that 61.29 percent of the change in the dependent variable (capital structure measured by debt to equity ratio) is explained by the independent variables that are selected and included in the model. This implies that the leverage ratio of commercial banks in Ethiopia is highly explained by the selected firm-specific variables. The result also showed profitability, size, age and tax-shield variables are the significant firm-specific determinants of capital structure in Ethiopian commercial banks case. Among these, profitability, size and tax-shield variables are found highly significant factors at 1 percent significance level. The result, in contrary to most previous researches, verified that tangibility of assets and growth variables do not have influence on commercial bank's financial decisions.

This research also uncovered the fact that the two variables (profitability and growth) established negative relationship and the remaining four variables (tangibility, size, age and tax-shield) showed positive relationship with capital structure. As a result, profitability variable attained an inverse relationship with capital structure measure that supports Pecking order theory, but opposes the Static trade-off theory. This suggests that highly profitable commercial banks in Ethiopia maintain low debt to equity ratio and they utilize more equity sources as compared to debt sources for making their capital structure. Tangibility variable has direct relationship with financial leverage but the researcher could not get enough statistical significance. That is, tangibility variable does not have influence on commercial banks' financing decisions but has positive relationship. This relationship is consistent with the three theories of capital structure.

Size variable displayed a positive relation with financial leverage and is found to be a most important determinant of commercial banks' financing pattern. Larger banks in the Ethiopian commercial banking sector maintain high leverage ratios. Therefore, size's relationship with financial leverage supports Static trade-off theory and Agency cost theory but contradicts with Pecking order theory. Negative relationship between growth and leverage was also found out as insignificant determinant variable of banks' financing decision. The negative relationship between growth and financial leverage supports Static trade-off and Agency cost theories of capital structure. The positive and significant relationship between age and leverage strongly supports the Static trade-off theory but go up against Pecking order theory. Lastly, tax shield variable displays a positive relation with

financial leverage. This positive relation verifies that banks with high tax-shield use more debt than equity. This evidence is consistent with Static trade-off theory for only short term debts.

From the test of consistency of capital structure relevancy results, the researcher asserted that all the capital structure relevancy theories: Static trade-off, Pecking order and Agency cost theory are partially accepted in commercial banking sector of Ethiopia, though there is more evidence for Static trade-off theory.

As a concluding remark, this research project found that profitability, size, age and tax-shield are some among the firm-specific factors that determine Ethiopian commercial banks' capital structure and are also found to be similar to the factors that influence the capital structure of firms in developed and other developing counties that are studied by different researchers. However, in acknowledging the influence of other pertinent factors, like corporate governance, legal framework and institutional environment of the countries; that are not included in this study, capital structure decision is not only the product of firm's own characteristics but also the macroeconomics environment in which the firm operates.

## 5.2. Recommendations

The findings of the study are deemed to benefit investors, professional managers, lenders, academicians and policy makers in the country. Therefore, the writer has, based on the major findings discussed above, drawn the following recommendations to investors, commercial banks, lenders, policy makers in Ethiopia and academicians. Suggestions for further research are also forwarded.

**To Investors and Shareholders**

- ☞ External investors and shareholders should appreciate the discussed variables that determine the capital structure of a particular commercial bank and observe its performance before making decisions of whether or not to buy or sell its particular stock when secondary market begins to operate in Ethiopia.

**To Commercial Bankers:**

- ☞ The study has identified the determinants of capital structure of commercial banks of Ethiopia. Therefore, commercial banks should (constrained by the policies and

regulations of the National Bank of Ethiopia) stipulate standards to determine the proportion of debt to equity ratio. Therefore, CEOs and finance managers of commercial banks shall consider the findings of this paper to make appropriate capital structure decisions that best fit their respective banks' financing needs.

- The coefficient of tax-shield is found to be very small compared to the coefficients of other significant variables. Thus, its degree of influence on financing decision commercial banks is can be said insignificant. This shows that commercial banks in Ethiopia are not benefiting from tax advantage of interest expenses, considerably. Therefore, the financial managers of commercial banks should give substantial attention for the tax-shield variable.

**To Lenders:**

- Before lenders seek to protect themselves from excessive use of corporate leverage through the use of protective covenants, they should consider the capital structure determinant variables studied above to evaluate and predict the risk associated with lending capital to their respective borrowers.

**To Policy Makers at Different Levels:**

- Ethiopian Commercial banks' capital is found to rely more on debt financing than on equity financing. This is an indication of business environment that investors could buy and sell their stocks and firms in the country could raise capital for their projects. Capital markets are, therefore, one of the instruments that potentially switch companies' financing from short to long-term securities and investors' attention from short-term investments to long-term investments in addition they promote the mobilization of private investment on public debt and equity issues. Therefore, now is the appropriate time to research the importance and applicability of secondary market in Ethiopian case.
- The lack of high-quality databases might constitute the major barrier on conducting capital structure research in Ethiopia. Consequently, there is a need, for policy makers at different levels, to design policies which guide organizations to develop validated databases as more data becomes available in future. Using such databases can help examining and identifying additional variables that could influence the financing behavior of Ethiopian firms and other studies.

**For Further Research**

The limitations of the study provide avenue for the directions for future research. Some of the recommendations for future research include the following:

1) For the purpose of this study and for the sake of simplicity, the researcher has focused on a single measure of leverage that is debt to equity ratio. Obviously factors that affect short-term debt and factors that affect long-term debt might be different. Hence, further studies should be made incorporating different measures of leverage. Apart from this, both dependent and independent variables are not adequately defined owing to time constraints and shortage of data. It is imperative that these unnoticed variables and other measures of the included variables to be taken into account in future capital structure studies.

2) Tangibility and growth variables need to be retested under longer-study period when the data is available.

3) Other important external (macroeconomic) variables such as inflation, GDP growth, interest rate, corporate governance, legal framework and impact of the country's financial system should be added besides the firm-specific factors to determine capital structure of firms.

4) In this study, the researcher has mainly examined the factors that influence financing mix of commercial banks in Ethiopia. It might be interesting and crucial to extend this research to other sectors of the economy in the country.

5) A comparative analysis of capital structure decision of firms across developing countries can give enhanced picture about what really determines their capital structure decisions. Therefore, studies should be made across countries on determinants of capital structure decision in order to obtain vivid understanding about whether and to what extent macroeconomic conditions influence capital structure decision of commercial banks.

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**Appendix 1:** STATA Output of Tabulated Standardized residuals

**Source:** *Researcher's own computation based on the financial statements*

| Standardized Residuals | Freq. | Percent | Cum. |
|---|---|---|---|
| -2.144524 | 1 | 1.43 | 1.43 |
| -1.748011 | 1 | 1.43 | 2.86 |
| -1.639237 | 1 | 1.43 | 4.29 |
| -1.496695 | 1 | 1.43 | 5.71 |
| -1.330775 | 1 | 1.43 | 7.14 |
| -1.31282 | 1 | 1.43 | 8.57 |
| -1.29714 | 1 | 1.43 | 10.00 |
| -1.274646 | 1 | 1.43 | 11.43 |
| -1.196976 | 1 | 1.43 | 12.86 |
| -1.188884 | 1 | 1.43 | 14.29 |
| -1.046628 | 1 | 1.43 | 15.71 |
| -.9898105 | 1 | 1.43 | 17.14 |
| -.9847601 | 1 | 1.43 | 18.57 |
| -.8649171 | 1 | 1.43 | 20.00 |
| -.8249193 | 1 | 1.43 | 21.43 |
| -.8173999 | 1 | 1.43 | 22.86 |
| -.8139665 | 1 | 1.43 | 24.29 |
| -.7968678 | 1 | 1.43 | 25.71 |
| -.6668962 | 1 | 1.43 | 27.14 |
| -.593833 | 1 | 1.43 | 28.57 |
| -.5885032 | 1 | 1.43 | 30.00 |
| -.5346012 | 1 | 1.43 | 31.43 |
| -.5127237 | 1 | 1.43 | 32.86 |
| -.4787374 | 1 | 1.43 | 34.29 |
| -.4562592 | 1 | 1.43 | 35.71 |
| -.4139114 | 1 | 1.43 | 37.14 |
| -.3080939 | 1 | 1.43 | 38.57 |
| -.2845356 | 1 | 1.43 | 40.00 |
| -.1628767 | 1 | 1.43 | 41.43 |
| -.1431026 | 1 | 1.43 | 42.86 |
| -.1120213 | 1 | 1.43 | 44.29 |
| -.1088298 | 1 | 1.43 | 45.71 |
| -.0546226 | 1 | 1.43 | 47.14 |
| -.0375416 | 1 | 1.43 | 48.57 |
| -.0011958 | 1 | 1.43 | 50.00 |
| .0023032 | 1 | 1.43 | 51.43 |
| .0248975 | 1 | 1.43 | 52.86 |
| .0422904 | 1 | 1.43 | 54.29 |
| .0492983 | 1 | 1.43 | 55.71 |
| .1177274 | 1 | 1.43 | 57.14 |
| .127941 | 1 | 1.43 | 58.57 |
| .2088253 | 1 | 1.43 | 60.00 |
| .245255 | 1 | 1.43 | 61.43 |
| .2668819 | 1 | 1.43 | 62.86 |
| .2725789 | 1 | 1.43 | 64.29 |
| .3329024 | 1 | 1.43 | 65.71 |
| .3418512 | 1 | 1.43 | 67.14 |
| .3657711 | 1 | 1.43 | 68.57 |
| .3912249 | 1 | 1.43 | 70.00 |
| .4037821 | 1 | 1.43 | 71.43 |
| .4114315 | 1 | 1.43 | 72.86 |
| .5185367 | 1 | 1.43 | 74.29 |
| .5204086 | 1 | 1.43 | 75.71 |
| .5424289 | 1 | 1.43 | 77.14 |
| .5933241 | 1 | 1.43 | 78.57 |
| .6008781 | 1 | 1.43 | 80.00 |
| .755161 | 1 | 1.43 | 81.43 |
| .8304118 | 1 | 1.43 | 82.86 |
| .8485079 | 1 | 1.43 | 84.29 |
| 1.108375 | 1 | 1.43 | 85.71 |
| 1.124395 | 1 | 1.43 | 87.14 |
| 1.203148 | 1 | 1.43 | 88.57 |
| 1.282835 | 1 | 1.43 | 90.00 |
| 1.382457 | 1 | 1.43 | 91.43 |
| 1.425275 | 1 | 1.43 | 92.86 |
| 1.486807 | 1 | 1.43 | 94.29 |
| 1.807863 | 1 | 1.43 | 95.71 |
| 2.36517 | 1 | 1.43 | 97.14 |
| 2.437555 | 1 | 1.43 | 98.57 |
| 2.84879 | 1 | 1.43 | 100.00 |
| Total | 70 | 100.00 | |

**Appendix 2:** Simple Regression Results of DER with each Independent Variable in 7 Banks

**Source:** *Researcher's own computation based on the financial statements*

a) Simple regression of DER with PR

```
      Source |       SS       df       MS              Number of obs =      70
-------------+------------------------------           F(  1,    68) =   13.22
       Model |  94.0677899     1  94.0677899            Prob > F      =  0.0005
    Residual |  483.734286    68   7.1137395            R-squared     =  0.1628
-------------+------------------------------           Adj R-squared =  0.1505
       Total |  577.802076    69  8.37394313            Root MSE      =  2.6672

------------------------------------------------------------------------------
         DER |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          PR |  -83.69028    23.0146    -3.64   0.001    -129.6152   -37.76535
       _cons |     10.478   .7279274    14.39   0.000     9.025444    11.93056
```

b) Simple regression of DER with TN

```
      Source |       SS       df       MS              Number of obs =      70
-------------+------------------------------           F(  1,    68) =    2.69
       Model |  22.0041242     1  22.0041242            Prob > F      =  0.1055
    Residual |  555.797952    68  8.17349929            R-squared     =  0.0381
-------------+------------------------------           Adj R-squared =  0.0239
       Total |  577.802076    69  8.37394313            Root MSE      =  2.8589

------------------------------------------------------------------------------
         DER |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          TN |  -62.68455   38.20432    -1.64   0.105    -138.9201    13.55099
       _cons |   9.092645     .69572    13.07   0.000     7.704357    10.48093
```

c) Simple regression of DER with SZ

```
      Source |       SS       df       MS              Number of obs =      70
-------------+------------------------------           F(  1,    68) =   40.09
       Model |  214.291574     1  214.291574            Prob > F      =  0.0000
    Residual |  363.510502    68  5.34574267            R-squared     =  0.3709
-------------+------------------------------           Adj R-squared =  0.3616
       Total |  577.802076    69  8.37394313            Root MSE      =  2.3121

------------------------------------------------------------------------------
         DER |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          SZ |    1.27499   .2013763     6.33   0.000       .87315     1.67683
       _cons |  -19.47073   4.363107    -4.46   0.000    -28.17718   -10.76429
```

d) Simple regression of DER with GR

```
      Source |       SS       df       MS              Number of obs =      70
-------------+------------------------------           F(  1,    68) =    8.26
       Model |  62.5771117     1  62.5771117            Prob > F      =  0.0054
    Residual |  515.224964    68  7.57683771            R-squared     =  0.1083
-------------+------------------------------           Adj R-squared =  0.0952
       Total |  577.802076    69  8.37394313            Root MSE      =  2.7526

------------------------------------------------------------------------------
         DER |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          GR |  -9.953307   3.463408    -2.87   0.005    -16.86443   -3.042184
       _cons |   10.24602   .8165457    12.55   0.000     8.616632    11.87541
```

**Appendix 2:** *(Continued)*

**Source:** *Researcher's own computation based on the financial statements*

e) Simple regression of DER with AG

| Source | SS | df | MS | | Number of obs | = | 70 |
|---|---|---|---|---|---|---|---|
| Model | 158.516324 | 1 | 158.516324 | | F( 1, 68) | = | 25.71 |
| Residual | 419.285752 | 68 | 6.16596694 | | Prob > F | = | 0.0000 |
| | | | | | R-squared | = | 0.2743 |
| Total | 577.802076 | 69 | 8.37394313 | | Adj R-squared | = | 0.2637 |
| | | | | | Root MSE | = | 2.4831 |

| DER | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| AG | .0777658 | .0153374 | 5.07 | 0.000 | .0471605 | .1083712 |
| _cons | 6.870713 | .383019 | 17.94 | 0.000 | 6.106411 | 7.635016 |

f) Simple regression of DER with TXS

| Source | SS | df | MS | | Number of obs | = | 70 |
|---|---|---|---|---|---|---|---|
| Model | 113.818725 | 1 | 113.818725 | | F( 1, 68) | = | 16.68 |
| Residual | 463.983351 | 68 | 6.82328457 | | Prob > F | = | 0.0001 |
| | | | | | R-squared | = | 0.1970 |
| Total | 577.802076 | 69 | 8.37394313 | | Adj R-squared | = | 0.1852 |
| | | | | | Root MSE | = | 2.6121 |

| DER | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| TXS | 2.78e-08 | 6.80e-09 | 4.08 | 0.000 | 1.42e-08 | 4.13e-08 |
| _cons | 7.200418 | .3818453 | 18.86 | 0.000 | 6.438458 | 7.962379 |

## **Appendix 3:** Financial Statements of the Sampled Commercial Banks

**Source:** *National Bank of Ethiopia*

### a) Ten Years Financial Statement of Commercial Banks of Ethiopia

**Commercial Bank of Ethiopia**
**Balance Sheet**
**At year ending June**
(In Millions of Birr)

| **Assets** | 2,000 A | 2,001 A | 2,002 | 2,003 | 2,004 | 2,005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| Cash on hand | 316 | 440 | 430 | 609 | 406 | 669 | 573 | 665 | 991 | 1,011 |
| Cash at Bank | - | - | - | | | 50 | | 580 | 226 | |
| Reserve Account with NBE | 4,080 | 2,142 | 2,262 | 3,196 | 3,934 | 11,304 | 6,656 | 9,204 | 8,872 | 7,748 |
| Deposit with foreign Banks | 1,873 | 1,719 | 2,157 | 2,291 | 2,090 | 837 | 1,392 | 1,056 | 1,236 | 1,450 |
| Treasury Bills | 586 | 1,800 | 3,081 | 7,558 | 10,189 | 4,610 | 12,586 | 14,155 | 6,512 | 5,410 |
| Other Investments/bonds | 2,099 | 5,121 | 5,125 | 2,481 | 2,828 | 5,488 | 4,566 | 7,979 | 14,408 | 19,830 |
| Trust Funds | 41 | - | - | - | | 22 | | | 19 | |
| Sundury Debtors & Other debit balances | 1,683 | 1,335 | 1,507 | 1,782 | 2,004 | 2,428 | 2,194 | 1,206 | 1,577 | 3,315 |
| Total Loans Advances | 10,347 | 10,658 | 9,751 | 8,553 | 8,325 | 9,556 | 9,296 | 9,759 | 17,339 | 20,906 |
| Less Provision For Doubtful Debts | 1,438 | 1,959 | 2,394 | 2,478 | 2,029 | 2,023 | 1,643 | 1,389 | 1,063 | 649 |
| **Net Loans & advances** | 8,909 | 8,699 | 7,357 | 6,075 | 6,296 | 7,533 | 7,653 | 8,370 | 16,275 | 20,257 |
| Customers' liability for L/C | | | | | | | | | | |
| Net Fixed assets (Aq.asset,defered charges) | 241 | 233 | 227 | 208 | 228 | 228 | 229 | 241 | 299 | 391 |
| Total | 19,828 | 21,489 | 22,146 | 24,200 | 27,975 | 33,169 | 35,849 | 43,456 | 50,416 | 59,411 |
| **Liabilities** | | | | | | | | | | |
| **Deposits** | 15,715 | 17,471 | 18,530 | 19,762 | 22,531 | 25,367 | 28,286 | 32,873 | 37,633 | 43,489 |
| *Demand Deposits* | *7,867* | *8,954* | *9,223* | *10,907* | 12,707 | 13,896 | 14,908 | 19,654 | 22,167 | 25,207 |
| *Saving Deposits* | *6,672* | *7,494* | *8,138* | *7,845* | 9,326 | 10,631 | 11,814 | 12,840 | 15,139 | 17,761 |
| *Fixed Deposits* | *449* | *504* | *492* | *383* | 373 | 407 | 1,405 | 301 | 328 | 521 |
| *Foreign Bank their A/C* | *686* | *519* | *677* | *627* | 125 | 433 | 159 | 78.00 | | |
| *Trust Funds* | *41* | - | - | - | | | | | | |
| **Short term loans** | | | | | | | | | | |
| **Other credit balances** | 1,505 | 2,511 | 2,757 | 2,990 | 2,408 | 3,692 | 3,996 | 4,670 | 6,564 | 5,513 |
| Margin held on L/C | 813 | - | - | - | 1,387 | 2,465 | 1,743 | 1,323 | 1,610 | 2,618 |
| **Long term loans** | 3 | - | - | - | | | | | | |
| Provision for taxation | 204 | 194 | 30 | 171 | 153 | 216 | 318 | 306 | 48 | 785 |
| State dividend payable | 237 | 12 | - | - | | | | | | 1,966 |
| Other provisions | 62 | - | - | - | | | | | 64 | |
| Bank's liability to L/C | | | | | | | | | | |
| **Capital & reserves** | 1,289 | 1,301 | 829 | 1,277 | 1,496 | 1,429 | 1,506 | 4,220 | 4,560 | 5,041 |
| *Authorized & paid* | *620* | *620* | *620* | *620* | 620 | 620 | 620 | 4,000 | 4,000 | 4,000 |
| *Legal reserves* | *402* | *407* | *407* | *657* | 624 | 677 | 886 | 220 | 556 | 1,036 |
| *General reserves* | *65* | *65* | *64* | - | 65 | 65 | | | | |
| *Retined Earning* | *202* | *209* | - *262* | - | 187 | 67 | | | 4 | 4 |
| *Profit & loss A/C* | | - | | | | | | | | |
| Total | 19,828 | 21,489 | 22,146 | 24,200 | 27,975 | 33,169 | 35,849 | 43,456 | 50,416 | 59,411 |
| | 19,828 | 21,489 | 22,146 | 24,200 | 27,975 | 33,169 | 35,849 | 43,456 | 50,416 | 59,411 |

Commercial Bank of Ethiopia
Year-ending June Income Statement
( In millions of Birr)

| Descriptions | 2,000 | 2,001 | 2,002 | 2,003 | 2,004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| Interest Income | + 1,000 | 987 | 586 | 670 | 680 | 646 | 853 | 1,036 | 1,541 | 2,358 |
| Interest Expense | 382 | 428 | 395 | 251 | 268 | 291 | 330 | 351 | 534 | 614 |
| Net Interest Income | 618 | 559 | 191 | 419 | 412 | 355 | 523 | 685 | 1,007 | 1,744 |
| Service Charge & Commission Income | + 76 | 95 | 216 | 97 | 126 | 397 | 181 | 200 | 279 | 974 |
| Other Income | + 244 | 259 | 202 | 531 | 462 | 343 | 790 | 1,017 | 1,152 | 516 |
| Total Non Interest Income | 320 | 354 | 418 | 628 | 588 | 740 | 971 | 1,217 | 1,431 | 1,490 |
| Net Interest Income & Non Interest income | 938 | 913 | 609 | 1,047 | 1,000 | 1,095 | 1,494 | 1,902 | 2,438 | 3,234 |
| Employees Salary & benefits | 95 | 113 | 129 | 133 | 162 | 175 | 187 | 218 | 285 | 325 |
| Provision For Doubtful Loans | 106 | 488 | 627 | 80 | 212 | - | - | - | - | |
| General Expenses | 117 | 99 | 360 | 118 | 139 | 131 | 187 | 514 | 285 | 193 |
| Total Non Interest Expenses | 318 | 700 | 1,116 | 331 | 513 | 306 | 374 | 732 | 570 | 518 |
| Prior Year Ajustment | - | - | - | - | | | | | | |
| Operating Income before Tax | 620 | 213 | - 507 | 716 | 487 | 789 | 1,120 | 1,170 | 1,868 | 2,716 |
| Tax | 208 | 194 | 36 | 171 | 153 | 217 | 318 | 305 | 507 | 795 |
| Net Income After Taxes & Provision | 412 | 19 | - 471 | 545 | 334 | 572 | 802 | 864 | 1,361 | 1,921 |

**Appendix 3:** *(Continued)*

**Source:** *National Bank of Ethiopia*

## b) Ten Years Financial Statement of Awash International Bank

| Awash International Bank<br>Balance Sheet<br>Year ending June<br>( In millions of Birr) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Assets** | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| | A | | | | | | | | | |
| Cash on hand | 39 | 69 | 120 | 76 | 100 | 129 | 125 | 181 | 272 | 478 |
| Cash at Bank | 14 | 6 | 6 | 2 | 0 | 2 | 2 | 1 | 1 | 99 |
| Reserve Account with NBE | 27 | 81 | 81 | 61 | 206 | 233 | 237 | 520 | 909 | 1,771 |
| Deposit with foreign Banks | 45 | 104 | 66 | 100 | 116 | 267 | 367 | 426 | 532 | 838 |
| Treasury bills | 150 | 46 | 130 | 316 | 337 | 235 | 198 | | 130 | |
| Other Investments | 1 | 8 | 10 | 3 | 3 | 3 | 3 | 3 | 4 | 4 |
| Trust Funds | | | | - | | | | | | |
| Other debit balances | 27 | 22 | 48 | 30 | 61 | 72 | 152 | 196 | 230 | 521 |
| Total Loans Advances | 447 | 561 | 637 | 800 | 946 | 1290 | 1872 | 2512 | 2,738 | 2,713 |
| Less Provision For Doubtful Debts | 14 | 19 | 24 | 44 | 73 | 80 | 92 | 109 | 127 | 149 |
| Net Loans & advances | 433 | 542 | 613 | 756 | 873 | 1,210 | 1,780 | 2,403 | 2,611 | 2,564 |
| Customers' liability for L/C | | | | - | | | | | | 710 |
| Fixed assets | 23 | 29 | 38 | 57 | 74 | 75 | 90 | 100 | 131 | 147 |
| **Total** | **759** | **907** | **1,112** | **1,401** | **1,770** | **2,226** | **2,954** | **3,830** | **4,820** | **6,423** |
| **Liabilities** | | | | | | | | | | |
| Deposits | 591 | 751 | 930 | 1,164 | 1,493 | 1,940 | 2,567 | 3,112 | 3,870 | 4,962 |
| *Demand Deposits* | 132 | 136 | 166 | 245 | 287 | 422 | 574 | 603 | 825 | 1,133 |
| *Saving Deposits* | 409 | 552 | 713 | 875 | 1141 | 1437 | 1833 | 2223 | 2,792 | 3,649 |
| *Fixed Deposits* | 50 | 63 | 51 | 44 | 65 | 81 | 160 | 286 | 253 | 181 |
| Foreign Bank their A/C | | | | | | | | | | |
| Trust Funds | | | | | | | | | | |
| Short term loans | | | | | | | | | | |
| Other credit balances | 74 | 43 | 51 | 73 | 94 | 16 | 18 | 214 | 248 | 326 |
| Margin held on L/C | | | | 27 | 22 | 42 | 65 | 70 | 105 | 339 |
| Loang term loans | | | | | | | | | | |
| Provision for taxation | | | | | 6 | | | | | 34 |
| State dividend payable | | | | | | | | | | |
| Other provisions | | | | | | | | | | |
| Bank's liability to L/C | | | | | | | | | | 710 |
| Capital & reserves | 94 | 104 | 131 | 137 | 155 | 228 | 304 | 434 | 597 | 750 |
| *Authorized & paid* | 73 | 91 | 100 | 111 | 127 | 155 | 188 | 252.5 | 368 | 445 |
| *Legal reserves* | 9 | 12 | 17 | 19 | 23 | 32 | 43 | 67 | 99 | 152 |
| *General reserves* | 5 | 1 | 2 | 2 | 3 | 7 | 8 | 7.5 | 13 | |
| *Retained Earning* | | 9 | | | | | | | | 11 |
| *Profit & loss A/C* | 7 | | 12 | 5 | 2 | 34 | 65 | 106.5 | 117 | 152 |
| **Total** | **759** | **907** | **1,112** | **1,401** | **1,770** | **2,226** | **2,954** | **3,830** | **4,820** | **6,423** |
| | **759** | **907** | **1,112** | **1,401** | **1,770** | **2,226** | **2,954** | **3,830** | **4,820** | **6,423** |

| * 2009 data is Eighteen months ended 30.06.09<br>Awash International Bank<br>Year-ending June Income Statement<br>( In millions of Birr) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** |
| Description | | | | | | | | | | |
| Interest Income | 50 | 57 | 61 | 58 | 68 | 94 | 137 | 214.5 | 251 | 276 |
| Interest Expense | 20 | 30 | 29 | 26 | 30 | 34 | 48 | 62 | 106 | 120 |
| Net Interest Income | 30 | 27 | 32 | 32 | 38 | 60 | 89 | 153 | 145 | 156 |
| Service Charge & Commission Income | 7 | 5 | 13 | 17 | 21 | 34 | 48 | 48 | 60 | 67 |
| Other Income | 7 | 14 | 7 | 26 | 35 | 21 | 43 | 80.5 | 112 | 134 |
| Total Non Interest Income | 14 | 19 | 20 | 43 | 56 | 55 | 91 | 129 | 172 | 201 |
| Net Interest Income & Non Interest income | 44 | 46 | 52 | 75 | 94 | 115 | 180 | 281 | 317 | 357 |
| Employees Salary & Benefits | 7 | 10 | 13 | 14 | 16 | 22 | 30 | 38 | 48 | 67 |
| Provision For Doubtful Loans | 4 | 5 | 5 | 24 | 19 | 9 | | | | 29 |
| General Expenses | 10 | 13 | 15 | 19 | 24 | 29 | 39 | 39 | 65 | 59 |
| Total Non Interest Expenses | 21 | 28 | 33 | 57 | 59 | 60 | 69 | 77 | 113 | 155 |
| Prior Year Ajustment | | | | | | | | | | |
| Operating Income before Tax | 23 | 18 | 19 | 18 | 35 | 55 | 111 | 204 | 204 | 202 |
| Tax | 8 | 7 | 7 | 4 | 9 | 17 | 33 | 61 | 61.2 | 59 |
| **Net Income After Tax & Provisions** | **15** | **11** | **12** | **14** | **26** | **38** | **78** | **143** | **143** | **143** |

## Appendix 3: *(Continued)*

**Source:** *National Bank of Ethiopia*

### c) Ten Years Financial Statement of Dashen Bank

**Dashen Bank**
**Balance Sheet**
**Year ending June**
(In millions of Birr)

| Assets | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | A | | | | | | | | |
| Cash on hand | 42 | 46 | 58 | 103 | 77 | 110 | 120 | 150 | 268 | 370 |
| Cash at Bank | 19 | 27 | 28 | 34 | 81 | 75 | 1 | 13 | 46 | 232 |
| Reserve Account with NBE | 106 | 88 | 101 | 138 | 225 | 390 | 482 | 861 | 1,773 | 3,442 |
| Deposit with foreign Banks | 139 | 192 | 192 | 245 | 190 | 446 | 546 | 647 | 829 | 659 |
| Treasury Bills | 20 | 0 | 130 | 129 | 299 | | | | | |
| Other Investments | 0 | 10 | 31 | 23 | 26 | 28 | 28 | 28 | 28 | 28 |
| Trust fund | 0 | 0 | | | | | | | | |
| Other debit balances | 7 | 28 | 79 | 75 | 113 | 165 | 229 | 356 | 510 | 542 |
| Total Loans & Advances | 533 | 714 | 872 | 1267 | 1690 | 2232 | 3164 | 3988 | 4,382 | 4,452 |
| Less Provision For Doubtful Debts | 18 | 23 | 27 | 49 | 63 | 72 | 84 | 99 | 102 | 102 |
| Net Loans & advances | 515 | 691 | 845 | 1,218 | 1,627 | 2,160 | 3,080 | 3,889 | 4,280 | 4,349 |
| Customers liability | - | - | - | - | - | | | | | |
| Fixed assets | 17 | 18 | 22 | 26 | 39 | 46 | 60 | 97 | 94 | 110 |
| **Total assets** | **865** | **1,100** | **1,486** | **1,991** | **2,677** | **3,420** | **4,546** | **6,041** | **7,829** | **9,733** |
| **Liabilities** | | | | | | | | | | |
| Deposits | 605 | 886 | 1,191 | 1,621 | 2,178 | 2,833 | 3,692 | 4,861 | 6,152 | 7,925 |
| *Demand Deposits* | 183 | 261 | 393 | 466 | 623 | 793 | 1039 | 1361 | 1,617 | 2,190 |
| *Saving Deposits* | 371 | 533 | 737 | 1056 | 1,448 | 1,897 | 2,343 | 2843 | 3,842 | 5,034 |
| *Fixed Deposits* | 51 | 92 | 61 | 99 | 107 | 143 | 310 | 657 | 693 | 702 |
| *Foreign bank their a/c* | 0 | 0 | | | | | | | | |
| *Trust fund* | 0 | 0 | | | | | | | | |
| *Short term loans* | 0 | 0 | | | | | | | | |
| Other credit balances | 108 | 121 | 83 | 117 | 166 | 214 | 280 | 419 | 700 | 636 |
| Margin held on L/C | 68 | 0 | 60 | 94 | 101 | 104 | 136 | 145.5 | 153 | 160 |
| Long term loans | 0 | 0 | | | | | | | | |
| Provision for taxation | 7 | 0 | 15 | 10 | 22 | 26 | 52 | 71 | 94 | 103 |
| State /dividened payable | 0 | 0 | 15 | 20 | 38 | | | | | |
| Other provisions | 0 | 0 | 0 | 0 | 0 | | | | | |
| Bank's liability | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| **Capital & reserves** | **77** | **93** | **122** | **129** | **172** | **243** | **386** | **545** | **731** | **909** |
| *Authorized & paid* | 50 | 50 | 75 | 75 | 100 | 100 | 156 | 282 | 454 | 529 |
| *Legal reserves* | 7 | 12 | 18 | 25 | 39 | 57 | 90 | 137 | 197 | 259 |
| *General Reserve* | 0 | 0 | | | | 86 | 65 | 65 | | |
| *Retaned Earning* | 20 | 31 | 29 | 29 | 33 | | 75 | 60.5 | 80 | 121 |
| *Profit & loss A/C* | | | 0 | 0 | 0 | 0 | 0 | | | |
| **Total** | **865** | **1,100** | **1,486** | **1,991** | **2,677** | **3,420** | **4,546** | **6,041** | **7,829** | **9,733** |
| | **865** | **1,100** | **1,486** | **1,991** | **2,677** | **3,420** | **4,546** | **6,041** | **7,829** | **9,733** |

Dashen Bank
Income Statement
Year ending June
( In millions of Birr)

| Description | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | | | | | |
| Interest Income | 48 | 70 | 77 | 82 | 117 | 162 | 242 | 320 | 420 | 435 |
| Interest Expense | 20 | 31 | 36 | 30 | 41 | 52 | 67 | 93 | 162 | 199 |
| Net Interest Income | 28 | 39 | 41 | 52 | 76 | 110 | 175 | 227 | 258 | 235 |
| Service Charge & Commission Income | 10 | 6 | 17 | 25 | 17 | 38 | 61 | 68 | 87 | 123 |
| Other Income | 9 | 31 | 21 | 27 | 58 | 34 | 64 | 97 | 163 | 198 |
| Total Non Interest Income | 19 | 37 | 38 | 52 | 75 | 72 | 125 | 165 | 250 | 321 |
| Net Interest Income & Non Interest income | 47 | 76 | 79 | 104 | 151 | 182 | 300 | 392 | 508 | 556 |
| Employees Salary & Benefits | 8 | 11 | 14 | 19 | 23 | 29 | 41 | 53 | 73 | 97 |
| Provision For Doubtful Loans | 4 | 0 | 4 | 23 | 16 | 12 | 14 | 8 | 18 | 2 |
| General Expenses | 17 | 29 | 22 | 25 | 34 | 44 | 60 | 73 | 84 | 104 |
| Total Non Interest Expenses | 29 | 40 | 40 | 67 | 73 | 85 | 115 | 134 | 175 | 204 |
| Prior Year Ajustment | | | | | | | | | | |
| Operating Income before Tax | 18 | 36 | 39 | 37 | 78 | 97 | 185 | 258 | 333 | 352 |
| Tax | 7 | 15 | 15 | 10 | 22 | 26 | 52 | 71 | 94 | 103 |
| **Net Income After Tax & Provisions** | **11** | **21** | **24** | **27** | **56** | **71** | **133** | **187** | **239** | **250** |

## **Appendix 3:** *(Continued)*

**Source:** *National Bank of Ethiopia*

### d) Ten Years Financial Statement of Bank of Abyssinia

**Bank of Abyssinia**
**Balance Sheet**
**At year ending June**
(In millions of Birr)

| Assets | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | | | | | | | | | |
| Cash on hand | 19 | 22 | 28 | 51 | 58 | 110 | 101 | 128 | 325 | 612 |
| Cash at Bank | 21 | 21 | 252 | 242 | 170 | 16 | 5 | 1 | 1 | 16 |
| Reserve Account With NBE | 63 | 51 | 70 | 73 | 104 | 440 | 472 | 433 | 821 | 1694 |
| Deposit with foreign Banks | 58 | 84 | 85 | 141 | 123 | 193 | 203 | 260 | 295 | 375 |
| Treasury Bills | 0 | 0 | 0 | 0 | 173 | 0 | 0 | 200 | | |
| Other Investments | 5 | 5 | 5 | 5 | 5 | 0 | 0 | | | |
| Trust fund | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Sundury Debtors & Other debit balances | 32 | 32 | 58 | 61 | 44 | 90 | 113 | 136 | 195 | 260 |
| Total Loans & Advances | 522 | 687 | 669 | 809 | 962 | 1234 | 1963 | 2305 | 2,817 | 2709 |
| Less Provision for doubtful Debts | 8 | 18 | 38 | 62 | 73 | 61 | 61 | 108 | 251 | 266 |
| Net Loans & advances | 514 | 669 | 631 | 747 | 889 | 1,173 | 1,902 | 2,197 | 2,567 | 2443 |
| Custemers liability | - | - | - | 90 | 67 | | | | | |
| Fixed assets | 6 | 12 | 13 | 13 | 19 | 35 | 38 | 41 | 66 | 78 |
| Total | 718 | 896 | 1,142 | 1,333 | 1,585 | 2,057 | 2,834 | 3,396 | 4,270 | 5,477 |
| **Liabilities** | | | | | | | | | | |
| **Deposits** | 482 | 651 | 909 | 1,076 | 1,275 | 1,627 | 2,177 | 2,721 | 3,478 | 4,494 |
| *Demand Deposits* | 81 | 94 | 134 | 207 | 223 | 333 | 403 | 511 | 785 | 1211 |
| *Saving Deposits* | 330 | 468 | 631 | 719 | 937 | 1183 | 1548 | 1898 | 2,411 | 3050 |
| *Fixed Deposits* | 71 | 89 | 144 | 150 | 115 | 111 | 226 | 312 | 281 | 233 |
| *Foreing Bank* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| *Trust fund* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| *Short term loans* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Other credit balances | 45 | 42 | 54 | 67 | 84 | 118 | 173 | 209 | 288 | 329 |
| Margin held on L/C | 59 | 40 | 29 | 39 | 17 | 37 | 45 | 35 | 77 | 89 |
| Long term loans | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Provision for taxation | 9 | 0 | 9 | 2 | 16 | 21 | 37 | 28 | 7 | 45 |
| State dividened | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Other provisions | 0 | 16 | 0 | 0 | 0 | 0 | 0 | | | |
| Bank liability | 0 | 0 | 0 | 90 | 67 | | | | | |
| **Capital & reserves** | 123 | 147 | 141 | 149 | 193 | 254 | 402 | 403 | 420 | 519 |
| *Authorized & paid* | 108 | 120 | 129 | 132 | 137 | 166 | 265 | 265 | 315 | 316 |
| *Legal reserves* | 2 | 10 | 10 | 11 | 21 | 36 | 58 | 75 | 79 | 104 |
| *General & Special reserves* | 1 | 4 | 4 | 4 | 6 | 6 | 13 | 13 | 13 | 26 |
| *Retained Earning* | | 13 | -2 | 2 | 29 | 46 | 66 | 50 | 12 | 73 |
| *Profit & loss A/C* | 12 | 0 | | | | | | | | |
| Total | 718 | 896 | 1,142 | 1,333 | 1,585 | 2,057 | 2,834 | 3,396 | 4,270 | 5,477 |
| | 718 | 896 | 1,142 | 1,333 | 1,585 | 2,057 | 2,834 | 3,396 | 4,270 | 5,477 |

**Bank of Abyssinia**
**Income Statement**
**Year ending June**
( In millions of Birr)

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| Descriptions | | | | | A | B | C | D | | |
| Interest Income | 40 | 72 | 65 | 62 | 97 | 105 | 165 | 202 | 252 | 275.89 |
| Interest Expense | 17 | 27 | 34 | 27 | 29 | 33 | 41 | 60 | 93 | 112.07 |
| Net Interest Income | 23 | 45 | 31 | 35 | 68 | 72 | 124 | 142 | 159 | 164 |
| Service Charge & Commission Income | 2 | 2 | 1 | 8 | 12 | 14 | 21 | 23 | 31 | 35.85 |
| Other Income | 19 | 15 | 14 | 11 | 14 | 33 | 34 | 42 | 64 | 93.07 |
| Total Non Interest Income | 21 | 17 | 15 | 19 | 26 | 47 | 55 | 65 | 95 | 129 |
| Net Interest Income & Non Interest income | 44 | 62 | 46 | 54 | 94 | 119 | 179 | 207 | 254 | 293 |
| Employees Salary & Benefits | 4 | 6 | 7 | 8 | 10 | 13 | 30 | 35 | 45 | 65.91 |
| Provision For Doubtful Loans | 4 | 10 | 20 | 24 | 11 | 0 | 4 | 47 | 143 | 22.95 |
| General Expenses | 15 | 11 | 11 | 14 | 19 | 24 | 23 | 30 | 44 | 58.39 |
| Total Non Interest Expenses | 23 | 27 | 38 | 46 | 40 | 37 | 57 | 112 | 232 | 147 |
| Prior Year Ajustment | | | | | | | | | | |
| Operating Income before Tax | 21 | 35 | 8 | 8 | 54 | 82 | 122 | 95 | 22 | 145 |
| Tax | 9 | 16 | 10 | 2 | 16 | 21 | 37 | 28 | 7 | 45.03 |
| **Net Income After Tax & Provisions** | 12 | 19 | - 2 | 6 | 38 | 61 | 85 | 67 | 15 | 100 |

## Appendix 3: *(Continued)*

**Source:** *National Bank of Ethiopia*

### e) Ten Years Financial Statement of Wegagen Bank

| Wegagen Bank<br>Balance Sheet<br>Year ending June<br>( In millions of Birr) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Assets | 2000<br>B | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Cash on hand | 53 | 68 | 69 | 86 | 75 | 104 | 147 | 167 | 218 | 318 |
| Cash at bank | 12 | 27 | 30 | 33 | 54 | 104 | 91 | 124 | 115 | 271 |
| Reserve Account with NBE | 61 | 59 | 65 | 55 | 95 | 62 | 175 | 327 | 845 | 1,893 |
| Deposit with foreign Banks | 91 | 56 | 64 | 140 | 185 | 350 | 248 | 702 | 625 | 433 |
| Treasury Bills | 20 | 16 | 0 | 0 | 0 | 0 | | | | |
| Other Invesments | | 0 | 0 | 0 | 0 | 0 | | | | |
| Trust Funds | | 0 | 0 | 0 | 0 | 0 | | | | |
| Sundury Debtors & Other debit balances | 13 | 19 | 18 | 18 | 20 | 24 | 57 | 67 | 73 | 161 |
| TotalLoans & Abvances | 262 | 344 | 406 | 571 | 738 | 1002 | 1593 | 2155 | 2,347 | 2,112 |
| Less Provision for Doubtful Debts | 7 | 15 | 20 | 29 | 43 | 51 | 77 | 95 | 139 | 129 |
| Net Loans & advances | 255 | 329 | 386 | 542 | 695 | 951 | 1,516 | 2,060 | 2,208 | 1,984 |
| Customers' liability for L/C | | 0 | 0 | | | | | | | |
| Fixed assets | 9 | 9 | 14 | 15 | 16 | 21 | 25 | 33 | 41 | 58 |
| **Total** | **514** | **583** | **646** | **889** | **1,140** | **1,616** | **2,259** | **3,480** | **4,125** | **5,118** |
| **Liabilities** | | | | | | | | | | |
| **Deposits** | **373** | **449** | **515** | **704** | **876** | **1,288** | **1,778** | **2,724** | **2,966** | **3,728** |
| *Demand Deposits* | 119 | 159 | 172 | 251 | 375 | 590 | 725 | 1209.5 | 1,191 | 1,870 |
| *Saving Deposits* | 201 | 232 | 202 | 274 | 351 | 518 | 723 | 803.5 | 1,095 | 1,518 |
| *Fixed Deposits* | 53 | 58 | 137 | 179 | 150 | 180 | 330 | 710.5 | 680 | 340 |
| Foreign Bank their A/C | 0 | 0 | 4 | | | | | | | |
| Trust Funds | | 0 | 0 | | | | | | | |
| Short term loans | | 10 | 0 | | | | | | | |
| Other credit balances | 47 | 32 | 41 | 55 | 72 | 89 | 118 | 168 | 242 | 264 |
| Margin held on L/C | 40 | 26 | 20 | 33 | 50 | 43 | 85 | 144 | 260 | 214 |
| Long term loans | 0 | 0 | 0 | | | | | | | |
| Provision for taxation | 4 | 8 | 6 | 4 | 13 | 16 | 23 | 41 | 51 | 75 |
| State dividend payable | 0 | 0 | 0 | | | | | | | |
| Other provisions | 0 | 0 | 0 | | | | | | | |
| Bank's liability to L/C | 0 | 0 | 0 | | | | | | | |
| **Capital & reserves** | **50** | **58** | **64** | **93** | **129** | **180** | **255** | **403** | **605** | 836 |
| Authorized & paid | 44 | 46 | 53 | 77 | 89 | 113 | 151 | 238 | 381 | 532 |
| Legal reserves | 2 | 4 | 6 | 8 | 16 | 28 | 46 | 74 | 108 | 153 |
| General reserves | 1 | 1 | 0 | | | 3 | 5 | 8 | 12 | 16 |
| Retained Earning | | 0 | 0 | 8 | 24 | 36 | 53 | 83 | 104 | 135 |
| Profit & loss A/C | 3 | 7 | 5 | | | | | | | |
| Total | 514 | 583 | 646 | 889 | 1,140 | 1,616 | 2,259 | 3,480 | 4,125 | 5,118 |
| | 514 | 583 | 646 | 889 | 1,140 | 1,616 | 2,259 | 3,480 | 4,125 | 5,118 |

| Wegagen Bank<br>Income Statement<br>Year ending June<br>( In millions of Birr) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Description | | | | | A | B | C | D | | |
| Interest Income | 26 | 38 | 42 | 42 | 66 | 80 | 120 | 185 | 238 | 234 |
| Interest Expense | 14 | 17 | 20 | 17 | 18 | 22 | 35 | 55 | 90 | 83 |
| Net Interest Income | 12 | 21 | 22 | 25 | 48 | 58 | 85 | 130 | 149 | 150 |
| Service Charge & Commission Income | 6 | 12 | 12 | 16 | 27 | 39 | 52 | 67 | 91 | 90 |
| Other Income | 13 | 10 | 8 | 9 | 17 | 31 | 48 | 68 | 101 | 149 |
| Total Non Interest Income | 19 | 22 | 20 | 25 | 44 | 70 | 100 | 135 | 192 | 239 |
| Net Interest Income & Non Interest income | 31 | 43 | 42 | 50 | 92 | 128 | 185 | 265 | 341 | 389 |
| Employees Salary & Benefits | 7 | 9 | 10 | 11 | 14 | 20 | 31 | 44 | 55 | 74 |
| Provision For Doubtful Loans | 4 | 8 | 5 | 8 | 14 | 19 | 29 | 32 | 52 | 3 |
| General Expenses | 13 | 12 | 15 | 16 | 19 | 26 | 31 | 36 | 43 | 55 |
| Total Non Interest Expenses | 24 | 29 | 30 | 35 | 47 | 65 | 91 | 112 | 151 | 133 |
| Prior Year Ajustment | | | | | | | | | | |
| Operating Income before Tax | 7 | 14 | 12 | 15 | 45 | 63 | 94 | 153 | 190 | 256 |
| Tax | 4 | 8 | 6 | 4 | 13 | 15 | 23 | 41 | 51 | 75 |
| Net Income After Taxes & Provisions | 3 | 6 | 6 | 11 | 32 | 48 | 71 | 112 | 139 | 181 |

## **Appendix 3:** *(Continued)*

**Source:** *National Bank of Ethiopia*

### f) Ten Years Financial Statement of United Bank

| **UnitedBank** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Blance Sheet** | | | | | | | | | | |
| **Year ending June** | | | | | | | | | | |
| (In millions of Birr) | | | | | | | | | | |
| **Assets** | 2000 | 2001 | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** |
| Cash on hand | 10 | 13 | 21 | 35 | 34 | 44 | 68 | 116 | 176 | 260 |
| Cash at Bank | 1 | 5 | 21 | 13 | 14 | 15 | 72 | 33 | 238 | 278 |
| Reserve Account with NBE | 5 | 26 | 37 | 55 | 47 | 135 | 286 | 141 | 565 | 1,331 |
| Deposit with foreign Banks | 19 | 25 | 38 | 70 | 195 | 290 | 167 | 468 | 406 | 617 |
| Treasury Bills | 0 | 0 | 25 | 0 | 0 | 0 | 0 | | | |
| Other investment | 0 | 0 | | 0 | 0 | 0 | 0 | | | 1 |
| Trust fund | 0 | 0 | | 0 | 0 | 0 | 0 | | | |
| Sundury Debtors&Other debit balances | 15 | 5 | 3 | 4 | 6 | 8 | 17 | 25 | 20 | 38 |
| Total Loans & Advances | 88 | 134 | 163 | 290 | 384 | 593 | 1004 | 1410 | 1,860 | 2,152 |
| Less Provision for doubtful Debts | 1 | 1 | 2 | 7 | 15 | 23 | 29 | 43 | 50 | 66 |
| Net Loans & advances | 87 | 133 | 161 | 283 | 369 | 570 | 975 | 1368 | 1,810 | 2,086 |
| Customers liabilty | - | - | | | | | | | | |
| Fixed assets | 6 | 7 | 8 | 9 | 9 | 11 | 14 | 32 | 34 | 42 |
| **Total** | **143** | **214** | **314** | **469** | **674** | **1,073** | **1,599** | **2,183** | **3,250** | **4,652** |
| **Liabilities** | | | | | | | | | | |
| **Deposits** | **76** | **129** | **189** | **287** | **532** | **865** | **1,220** | **1,541** | **2,443** | **3,616** |
| *Demand Deposits* | 21 | 28 | 42 | 60 | 118 | 191 | 331 | 385 | 674 | 1,106 |
| *Saving Deposits* | 44 | 89 | 114 | 172 | 276 | 397 | 681 | 849 | 1,364 | 1,984 |
| *Fixed Deposits* | 11 | 12 | 33 | 55 | 138 | 277 | 208 | 307 | 405 | 525 |
| *Foreing bank* | 0 | 0 | | 0 | 0 | | | | | |
| *Trust fund* | 0 | 0 | | 0 | 0 | | | | | |
| *Shotr term loans* | 0 | 0 | | 0 | 0 | | | | | |
| Other credit balances | 8 | 15 | 26 | 72 | 30 | 42 | 124 | 225 | 142 | 183 |
| Margin held on L/C | 19 | 7 | 8 | 17 | 13 | 29 | 48 | 34 | 162 | 294 |
| Long term loans | 0 | 0 | | 0 | 0 | 0 | 0 | | | |
| Provistion for tax | 0 | 0 | 3 | 2 | 3 | 12 | 16 | 23 | 35 | 40 |
| State dividened | 0 | 0 | | 0 | 0 | 0 | 0 | | | |
| Other provisions | 0 | 0 | | 0 | 0 | 0 | 0 | | | |
| Bank liability | 0 | 0 | | 0 | 0 | 0 | 0 | | | |
| **Capital & reserves** | **40** | **63** | **88** | **91** | **96** | **125** | **191** | **360** | **468** | **520** |
| *Authorized & paid* | 37 | 57 | 82 | 83 | 85 | 88 | 132 | 268 | 335 | 362 |
| *Legal reserves* | 1 | 2 | 3 | 4 | 6 | 14 | 25 | 41 | 64 | 87 |
| *General & Special reserves* | | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| *Retained Earning* | 2 | 4 | 3 | 4 | 5 | 23 | 34 | 51 | 69 | 71 |
| *Profit & loss A/C* | | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| **Total** | **143** | **214** | **314** | **469** | **674** | **1,073** | **1,599** | **2,183** | **3,250** | **4,652** |
| | **143** | **214** | **314** | **469** | **674** | **1,073** | **1,599** | **2,183** | **3,250** | **4,652** |

| **United Bank** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Income Statement** | | | | | | | | | | |
| **Year ending June** | | | | | | | | | | |
| ( In millions of Birr) | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | 2000 | 2001 | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** |
| Descriptions | | | | | A | B | C | D | | |
| Interest Income | 8 | 13 | 17 | 19 | 27 | 46 | 71 | 122 | 171 | 210 |
| Interest Expense | 2 | 4 | 6 | 6 | 11 | 17 | 29 | 40 | 63 | 88 |
| **Net Interest Income** | 6 | 9 | 11 | 13 | 16 | 29 | 42 | 82 | 108 | 122 |
| Service Charge & Commission Income | 1 | 1 | 2 | 5 | 8 | 20 | 25 | 27 | 40 | 56 |
| Other Income | 5 | 8 | 5 | 7 | 11 | 25 | 30 | 43 | 68 | 79 |
| **Total Non Interest Income** | 6 | 9 | 7 | 12 | 19 | 45 | 55 | 70 | 109 | 135 |
| Net Interest Income & Non Interest income | 12 | 18 | 18 | 25 | 35 | 74 | 97 | 152 | 217 | 257 |
| Employees Salary & Benefits | 2 | 3 | 4 | 4 | 7 | 10 | 14 | 23 | 34 | 55 |
| Provision For Doubtful Loans | 1 | 1 | 1 | 5 | 9 | 7 | 6 | 13 | 14 | 17 |
| General Expenses | 4 | 6 | 6 | 9 | 9 | 14 | 17 | 29 | 43 | 52 |
| **Total Non Interest Expenses** | 7 | 10 | 11 | 18 | 25 | 31 | 37 | 65 | 91 | 124 |
| Prior Year Ajustment | | | | | | | | | | |
| **Operating Income before Tax** | 5 | 8 | 7 | 7 | 10 | 43 | 60 | 87 | 126 | 134 |
| Tax | 2 | 3 | 3 | 2 | 3 | 12 | 16 | 23 | 35 | 40 |
| **Net Income After Tax & Provisions** | **3** | **5** | **4** | **5** | **7** | **31** | **44** | **64** | **91** | **94** |

## **Appendix 3:** *(Continued)*

**Source:** *National Bank of Ethiopia*

### g) Ten Years Financial Statement of Nib International Bank

| Nib International Bank<br>Balance Sheet<br>As at end of June<br>(In millions of Birr) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Assets** | 2000 | 2001 | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** |
| Cash on hand | 6 | 25 | 41 | 67 | 76 | 138 | 111 | 147 | 341 | 1026 |
| Cash on bank | 18 | 0 | 25 | 10 | 21 | 28 | 23 | 21 | 94 | 189 |
| Reserve Account with NBE | 9 | 13 | 5 | 40 | 62 | 98 | 93 | 279 | 720 | 906 |
| Deposit with foreign banks | 29 | 54 | 96 | 97 | 92 | 200 | 208 | 249 | 178 | 213 |
| Treasury Bills | 25 | 0 | 0 | 30 | 80 | 0 | 0 | | | |
| Other Investments | 0 | 0 | | 1 | 1 | 2 | 2 | 3 | 3 | 4 |
| Trust fund | 0 | 0 | | 0 | 0 | 0 | | | | |
| Sundury Debtors&Other debit balances | 9 | 31 | 42 | 106 | 152 | 170 | 141 | 111 | 238 | 294 |
| Total Loans & Advances | 59 | 210 | 324 | 550 | 786 | 1133 | 1475 | 1817 | 2,114 | 2220 |
| Provisions | 0 | 0 | 4 | 22 | 30 | 47 | 57 | 62 | 80 | 102 |
| Net Loans & advances | 59 | 210 | 320 | 528 | 756 | 1086 | 1418 | 1755 | 2,034 | 2118 |
| Customers liabilty | 0 | 0 | | 131 | 149 | | | | | |
| Fixed assets | 3 | 3 | 5 | 6 | 7 | 10 | 31 | 42 | 43 | 56 |
| **Total Assets** | **158** | **336** | **534** | **885** | **1,247** | **1,732** | **2,027** | **2,607** | **3,650** | **4,807** |
| **Liabilities and Capital** | | | | | | | | | | |
| **Deposits** | **78** | **208** | **345** | **588** | **832** | **1,223** | **1,452** | **1,879** | **2,470** | **3,296** |
| *Demand Deposits* | 37 | 61 | 95 | 152 | 229 | 292 | 327 | 423 | 671 | 1032 |
| *Saving Deposits* | 41 | 122 | 203 | 336 | 493 | 709 | 837 | 1085 | 1,437 | 1996 |
| *Fixed Deposits* | 0 | 25 | 47 | 100 | 110 | 222 | 288 | 371 | 362 | 269 |
| *Foreing bank* | 0 | 0 | | 0 | 0 | 0 | | | | |
| *Trust fund* | 0 | 0 | | 0 | 0 | 0 | | | | |
| *Sthort term loans* | 0 | 0 | | 0 | 0 | 0 | | | | |
| Other credit balances | 9 | 66 | 61 | 125 | 181 | 215 | 211 | 223 | 374 | 515 |
| Margin held | 31 | 0 | 20 | 41 | 47 | 50 | 56 | 50 | 163 | 201 |
| long term loan | 0 | 0 | | 0 | 0 | 0 | | | | |
| Provisions for taxtion | 0 | 0 | 9 | 6 | 14 | 20 | 23 | 30 | 46 | 66 |
| State dividened | 0 | 0 | | 0 | 0 | 0 | | | | |
| Other provisions | 0 | 0 | | 0 | 0 | 0 | | | | |
| Bank liabilty | 0 | 0 | 0 | 131 | 149 | | | | | |
| Capital & reserves | 40 | 62 | 99 | 125 | 173 | 224 | 285 | 425 | 598 | 729 |
| *Authorized & paid* | 39 | 52 | 84 | 105 | 129 | 160 | 200 | 307 | 426 | 488 |
| *Legal reserves* | 0 | 3 | 7 | 10 | 18 | 30 | 44 | 63 | 91 | 130 |
| *General & Special reserves* | 1 | 0 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Retained earning* | 0 | 0 | | 0 | 0 | 0 | | | | |
| *Profit & loss A/C* | 0 | 7 | 8 | 9 | 25 | 33 | 40 | 54 | 80 | 110 |
| **Total Liabilities and Capital** | **158** | **336** | **534** | **885** | **1,247** | **1,732** | **2,027** | **2,607** | **3,650** | **4,807** |
| | **158** | **336** | **534** | **885** | **1,247** | **1,732** | **2,027** | **2,607** | **3,650** | **4,807** |

| Nib International Bank<br>Income Statement<br>Year ending June<br>(In millions of Birr) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2001 | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** |
| Descriptions | | | | | | | | | | |
| Interest Income | 3 | 19 | 29 | 37 | 56 | 83 | 107 | 147 | 210 | 254 |
| Interest Expense | 1 | 5 | 10 | 11 | 15 | 24 | 33 | 42 | 62 | 75 |
| Net Interest Income | 2 | 14 | 19 | 26 | 41 | 59 | 74 | 105 | 148 | 178 |
| Service Charge & Commission Income | 1 | 5 | 7 | 13 | 18 | 23 | 25 | 27 | 48 | 90 |
| Other Income | 1 | 8 | 9 | 16 | 19 | 29 | 29 | 34 | 58 | 82 |
| Total Non Interest Income | 2 | 13 | 16 | 29 | 37 | 52 | 54 | 61 | 107 | 172 |
| Net Interest Income & Non Interest income | 4 | 27 | 35 | 55 | 78 | 111 | 128 | 166 | 254 | 351 |
| Employees Salary & Benefits | 1 | 3 | 4 | 6 | 8 | 11 | 17 | 25 | 36 | 53 |
| Provision For Doubtful Loans | 0 | 1 | 3 | 20 | 8 | 18 | 9 | 5 | 19 | 23 |
| General Expenses | 2 | 5 | 6 | 10 | 13 | 16 | 21 | 30 | 41 | 55 |
| Total Non Interest Expenses | 3 | 9 | 13 | 36 | 29 | 45 | 47 | 60 | 96 | 132 |
| Prior year adustment | | | | | | | | | | |
| Operating Income before Tax | 1 | 18 | 22 | 19 | 49 | 66 | 81 | 106 | 159 | 219 |
| Tax | 0 | 6 | 9 | 6 | 14 | 20 | 23 | 30 | 46 | 66 |
| **Net Income After Tax & Provisions** | **1** | **12** | **13** | **13** | **35** | **46** | **58** | **76** | **113** | **154** |