



**ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
MBA PROGRAM**

**Determinants of Capital Structure decision: Evidence From
Commercial Banks of Ethiopia**

By:-Meseret Engda Goshu

June 2022

ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY, SCHOOL OF GRADUATE
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By
MESERET ENGIDA GOSHU

APPROVED BY BOARD OF EXAMINERS

Dean, Graduate Studies

Signature

Mohamed Said (Ass. Prof)
(Advisor)


Signature

External Examiner

Signature

Internal Examiner

Signature

DECLARATION

I, the under signed, declare that the thesis work entitled “Determinants of Capital Structure decision: Evidence From Commercial Banks of Ethiopia” submitted by me under the supervision of Mohamed Said for the award of the degree of Master of Business Administration in Accounting and Finance of St,Mary's University at Addis Ababa, Ethiopia, is my original work and it has never been presented in any university. All sources and materials used for this thesis have been duly acknowledged.

Meseret Engida

Name

St. Mary's University, Addis Ababa, Ethiopia

Signature


June, 2022

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

Mohamed Said (Ass.Prof.)

(Advisor)



Signature

St. Mary's University, Addis Ababa, Ethiopia

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ACRONYMS / ABBREVIATIONS

AOF:	Age of Firm
BZ:	Bank of size
CBE:	Commercial Bank of Ethiopia
CLRM:	Classical Linear Regression Model
ER:	Exchange rate
EFR:	Efficiency rate
GDP:	Gross Domestic Product
GRO:	Growth opportunity
HP:	Hypotheses
INF:	Inflation
IR :	Interest rate
LEV:	leverage ratio
LIQ:	Liquidity
NBE:	National Bank of Ethiopia
NDT:	Non debt tax shield
OLS:	Ordinary Least Square
PRO:	Profitability
TAN:	Tangibility
GNP:	Gross National Product
GDP:	Gross Domestic product
IMF:	International monetary Fund

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ABSTRACT

The aim of this study is examined the determinants of capital structure decision by evidence in Commercial bank of Ethiopia. The study is an explanatory type of research which adopted quantitative methods of research approach by using secondary panel data of sixteen commercial banks from year 2013 to 2020. The research used panel model in examining the regression model specifically fixed Effect model on the regression analysis and used EView8 software. This research examined explanatory variables that are: specific industrial factor (tangibility, profitability, Bank size, age, liquidity, growth opportunity, Non-debt tax shields, efficiency rate) and external factors (that are exchange rate and interest rate) related to the leverage ratio. The result of the study shows that growth opportunity and Bank size have significant and positively affect leverage ratio, interest rate has significant and negatively affect leverage ratio. Whereas, tangibility age liquidity, Efficiency ratio, Non-debt tax shields and exchange rate have negatively and profitability has positively affect leverage ratio but the result was insignificant. Finally the study recommended the investors; the shareholders or the managers (decision makers) should be focus on the bank size and growth opportunity and external factor of interest rate in order to decide the capital structure.

Key words: capital structure decision, CBE,

TABLE OF CONTENTS

Declaration	iii
Endorsement	iv
Acronyms /Abbreviations	v
Acknowledgements	vi
ABSTRACT	vii
Table of Contents.....	viii
CHAPTER ONE	1
1. INTRODUCTION	1
1.1 Background of the Study	1
1.2 Statement of the problem	3
1.3 Research Question	7
1.4 Objective of the study	7
1.4.1 General Objective	7
1.4.2 Specific Objectives	7
1.5 Significance of the Study	7
1.6 Scope & Limitation of the Study	8
1.7 Organization of the Paper	8
CHAPTER TWO	9
2. LITERATURE REVIEW	9
2.1 Theoretical Literature	9
2.1.1 Irrelevancy Theory (Modigliani-Miller Theorem)	9
2.1.2 The pecking order theory	10
2.1.3 The Trade-off Theory	11
2.1.4 The Market Timing Theory	12
2.1.5 Capital Structure	12
2.1.6 Optimal Capital structure	14
2.1.7 Equity Financing	15
2.1.8 Debt Financing	16
2.1.9 Define explanatory variables	16
2.2 Empirical Review	23
2.2.1 Studies with reference to abroad context	23
2.2.2 Studies with reference to Local context	27
2.3 Conclusions and Knowledge Gap	32

2.4	Conceptual Framework	33
CHAPTER THREE		34
RESEARCH DESIGN AND METHODOLOGY.....		34
3.	Introduction.....	34
3.1	Research Design	34
3.2	Research Approach.....	34
3.3	Study Population, Sampling, and Sample Size.....	35
3.4	Source of data	36
3.5	Data collection Instruments.....	36
3.6	Methods of Data Analysis.....	37
3.7	Model Specification	37
3.8	Variable Presentation.....	39
3.8.1	Dependent variable.....	39
3.8.2	Independent variables.....	39
CHAPTER FOUR		44
Results and analysis		44
4.1	Introduction	44
4.2	Descriptive analysis.....	44
4.3	Correlation analysis.....	47
4.4	Model Diagnostic Test.....	48
4.4.1	Multicollinearity test.....	49
4.4.2	Autocorrelation Test.....	49
4.4.3	Tests for Heteroskedasticity	50
4.4.4	Normality Test.....	51
4.5	Model Specification Test.....	52
4.6	Result of regression analysis	53
4.6.1	Analysis on the regression out put.....	54
4.6.2	Analysis on the result of hypothesis testing.....	56
CHAPTER FIVE.....		63
Conclusion and Recommendation		63
5.1	Conclusion.....	63
5.2	Recommendation	64
Reference		66
APPENDICES		73
Appendix–I	Tests for the Multi-Collinarity.....	73

Appendix–2 Normality distribution graph.....	73
Appendix–3 test for Heteroskedasticity Test: White	73
Appendix–4 Regression Results (outputs)	74
Appendix 5: Summery of data used for the study.....	75

CHAPTER ONE

1. INTRODUCTION

This chapter discussed about the background study of the determinate of the capital structure decision background and then briefly explains the statement of the problem explains how the researcher was select this topic, and what points were explained by other researchers, and clearly shows the problems of the statement and the gap of the previous study. Then, the researcher questions, general objectives, and specific objectives of the research would be explained in this chapter.

1.1 Background of the Study

The capital structure of a firm is defined as the permanent financing represented by long-term debt, preferred stock, and shareholder equity (Copeland & Weston, 1993). The capital structure that maximizes the value of a firm is considered as an optimal one. An optimal capital structure not only imparts higher returns to its shareholders but also improves the competency of a firm (Copeland & Weston, 1993).

A capital structure decision on firm value has been the subject of a remarkable landmark over the past several years in the finance literature. For instance, Modigliani and Miller (1958) irrelevance theory argued that capital structure is unrelated to a firm's value. But, in the presence of corporate income tax and the cost of capital Modigliani and Miller (1963) argued that the market value of the firm is positively related to the amount of long-term debt used in its capital structure.

Moreover, in theoretical models of capital structure, there are different views about the target capital structure. For instance, the static trade-off theory argues that there is an optimum capital structure that maximizes firm value while the pecking order hypothesis assumes that there is no well-defined target capital structure rather financing is the matter of the risk related to each financing alternatives (Fama & French, 2002).

Capital structure decisions are among the most important financing decisions companies would encounter. Under the perfect capital market assumption, if there is no bankruptcy cost and without taxes, the firm's value is independent of the capital structure

(Modigliani & Miller,1958). Debt can reduce the tax to pay, so the best capital structure of an enterprise should be one hundred percent of the debt (Modigliani & Miller, 1958). Since the seminal work of Modigliani and Miller in 1958, several theories have been developed to explain the capital structure of a firm including the Pecking order theory, Static Trade-off theory, and agency cost theory (Buferna et al,2005).

One of the major objectives of a firm is to maximize the wealth of owners or shareholders of the firm (Saad, 2010). The 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 maintained resulting from the firm's financing decisions (Mohammed, 2014).The wealth of shareholders, in turn, is defined as the current price of the firm's outstanding shares (Goyal, 2013). In order to achieve this objective firm's management should take rational financing decisions regarding optimal capital structure which in turn would minimize its cost of capital (Goyal, 2013).

Choosing sources of funding to finance the company's operations and investments is one of the most important decisions made by corporate executives, including the issuance of additional assets, the creation of new capital, or the retention of capital from operating operations. Therefore, it is important to know how to improve the performance of organizations, how to get financing, which one fits the needs of the organizations, and increase the value of the organization. There is the impact of several factors on the choice of whether to go for debt or equity. In this financially integrated world of today, no firm remains unaffected by what happens in the economy, so the better the management of a firm understands the internal (firm-specific) and external (macroeconomic) factors on capital structure, the more efficient they will be in their decision making process. (Ahmed, 2017).

In the effort to raise capital and pursue optimal capital structure and to finance their operations efficiently and effectively, firms need to adjust and mix both debt and equity strategically. In different literature, the factors that affect the capital structure of a firm are classified into two categories that are internal (firm-specific) and external (macroeconomic) (for instance Ahmed, 2017; Saddam, 2014).

Therefore, the aim of this study focused on the determinate factors capital structure decisions of the banking sector in Ethiopia. So, this study examines bank-specific factors such as profitability, banks' size, tangibility, age, liquidity, & Growth opportunity, industry-factor that are corporate tax rate and non-debt tax shields, and external factors that reflecting macroeconomic conditions such as inflation rate, interest rate, exchange rate.

1.2 Statement of the problem

Over the previous years, numerous studies on capital structure theory have appeared (Modigliani & Miller, 1958, 1963, 1984; Donaldson, 1961; Myers & Majluf, 1984; Harris & Ravis,1991). Following the influential work of Modigliani and Miller (1958), vast theoretical literature has been developed, which led to the formulation of alternative theories, such as the static trade-off model, pecking order theory, agency cost theory, and market timing theory. However, it was stated each of the theories on capital structure applied was based on certain circumstances based on the research made by Myers (1984). As such, the theories are not designed to be general rather they are conditional theories of capital structure; each of which emphasizes certain costs and benefits of alternative financing strategies. The determinants of capital structure have been debated for many years and still represent one of the most unsolved issues in corporate finance literature (Rajan & Zingales 1995).

How firms make their capital structure decisions has been one of the most extensively researched areas in the banking sector. Since the seminal work of Modigliani and Miller (1958) on the irrelevance of capital structure in investment decisions, a rich theoretical literature has emerged those models a firm's capital structure choice employing different frameworks. Several theories such as trade-off theory rely on traditional factors such as tax advantage and potential bankruptcy cost of debt while others use the asymmetric information or theoretical framework in which debt or equity is used as a signaling mechanism or a strategic tool. Many of these theories have also been empirically tested, yet there is little consensus on how firms choose their capital structure (Modigliani & Miller, 1958).

Besides the theoretical development, the determinants of capital structure have been debated for many years and still represent one of the most unsolved issues in the literature. Indeed, what makes the capital structure debates so exciting is that only a few of the developmental theories have been tested by empirical studies and the theories themselves lead to different, not mutually exclusive, and sometimes opposed results and conclusions (Weldemikael, 2012).

Many of the researchers are made studies conducted on determinate capital structure in the case of the various sectors by different researchers but the study shows that have been resulting in different conclusions. In addition, the Majority of empirical studies in the past were focused only on assessing firm-specific determinants of capital structure as compared to macroeconomic or external determinants of capital structure. However, some researchers assessed the relationship between macroeconomic or external variables and firms' leverage and they found their significance in determining capital structure decisions.

For instance, Angstrom (2016) examined the relationship between leverage and a number of macroeconomic indicators. This paper use market and accounting data of public non-financial traded companies in Sweden, as the result, shows Macroeconomic factors that show some significance for proxies of capital structure are GDP growth and exchange rate that shows a negative relationship with debt as well as corporate tax rate that shows a positive relationship with debt. Moreover, interest rates show a positive relationship with debt, and inflation has a negative relationship with debt (Aida, 2016).

Ahmed (2017) examines firm-specific (i.e. profitability, age, and tangibility) and macroeconomic (i.e. GDP growth rate and interest rate) factors' impact on financing decision of commercial banks in Ethiopia thereby identifying prominent theory for the banking sector of the country. In order to his analysis, the result shows that age, collateral, Interest rate, and GDP growth showed a positive and statistically significant effect on the leverage of banks (Ahmed, 2017) .

Contrary, at the macro-level economic growth (GDP growth) and inflation also have an insignificant and positive relationship with the leverage ratio. On the other hand variables like the size of banks and risk have an insignificant and positive relationship with

leverage as per the paper of Yohannes (2017) his study depends on identifying factors that affect the capital structure of commercial banks in Ethiopia. He used fourteen banks of Ethiopian information in his study. Saddam (2014) was to examine macroeconomic (i.e. GDP growth rate, interest rate, inflation rate) factors' impact on financing decision of insurance firms in Ethiopia thereby to conclude from the result of the study inflation rate variables were found to be significant factors that affect capital structure decision and GDP growth rate, the interest rate has an insignificant impact on capital structure decision on Insurance (Saddam, 2014).

On the Other hand, most studies examined firm specific factors that are profitability, liquidity, business risk, size, growth opportunity, age, and tangibility. Some out of them the results showed inconsistency. For instance, (Amen,2017;Ahmad,2015; Tomschik,2015 from abroad study; Weldemikael,2012) studied the determinants of capital structure in different cases but their analysis results in the explanatory variables, profitability, growth, size, risk, Liquidity, and Asset tangibility had a negative and significant relationship with the leverage ratio. On contrary, some study results indicate that the variables profitability, growth, and liquidity had a negative and insignificant relationship with leverage (Saddam, 2014; Yohannes, 2017).

Ahmed (2017) examines firm-specific (i.e. profitability, age, and tangibility) factors' impact on financing decision of commercial banks in Ethiopia thereby identifying prominent theory for the banking sector of the country. The nature of data used by this study was panel data mainly composed of financial statements of sample commercial banks and NBE reports over the period of 2004–2016. The result was that profitability has a negative and statistically significant impact on the leverage of Ethiopian commercial banks. In line with the hypothesis, the results of age, collateral, and Interest rate showed a positive and statistically significant effect on the leverage of banks (Melki, 2017). In opposites, Yohannes (2017) the main objective of his research is to identify factors that affect the capital structure of commercial banks in Ethiopia. The sample in this study includes fourteen commercial banks to operate during the study period. The panel data cover six years. Independent variables liquidity and asset tangibility are identified negative and significant relationship with a leverage ratio and growth, dividend and net debt tax shield of the bank, the regression result identified positive and significant

relation with leverage. On the contrary, profitability has a negative and insignificant impact on the formation of the capital structure of banks during the study period.

To conclude, In light of the above argue, the researcher understands that there is a variation among all empirical studies and the result on this topic is still inconsistent. So much empirical research has addressed the determinate capital structure decisions issues, but there is not yet a fully supported and commonly accepted theory, and the debate on the significance of determinant factors is still unfold (Morri & Beretta, 2008). Their finding was varied between one researcher with another and contradiction in conclusions and recommendations. Therefore, this topic is still an unresolved issue. Accordingly, the researcher believes that there is not enough research on determinate in the capital structure and decision of the banking industry in Ethiopia.

Accordingly, this study attempts to do the same as the previous study but differs largely in the focus and the scope of this study which examines many aspects of determinates capital structure decisions. The study spans 16 Private commercial Banks of Ethiopia, which are Enat, Debub Global, Addis International, Berehan International, Abay, Zemen, Buna International, Oromia International, Lion International, Cooperative Bank of Oromia, Dashen, Nib International, United Bank, Abyssinia, Wegagen Bank and Awash International Bank.

As of the researcher knowledge, the summary of major gaps in the previous studies is:

So far there is no conclusive and consistent evidence about the potential determinants of capital structure decisions in the bank sector.

There is no clear evidence either the financing decisions made by the banks provide empirical support for the existing capital structure relevancy theories.

Therefore, in order to contribute to the performance of the Banks and to contribute to a few economic studies, the researcher looks to analyze the recent six years of data from fifteen private commercial banks in Ethiopia for determinate capital structure decisions.

Hence, this study generally will have aims to fill the above stated gap in the literature. And also by identifying the factor that influences or determine the capital structure decision of banks, can have a say to the development of banks by address the issues.

Further, it can also provide additional facts about the concepts of determinate factors in capital structure decisions relevance for the banking industry.

1.3 Research Question

Based on the above statement of the problems the researcher is going to answer the following

- Which theories explain the decision of capital structure or capital structure formation of private commercial Banks?
- What are bank-specific factors affecting capital structure decisions in banking industries?
- What are industry-specific factors' affecting capital structure decisions in banking industries?
- What macro-economic factors' affecting capital structure decision in banking industries?

1.4 Objective of the study

1.4.1 General Objective

The main objective of this study is to examine the factors of capital structure decision of commercial banks of Ethiopia.

1.4.2 Specific Objectives

This study will attempt to achieve the following specific objectives;

- To examine which theories apply to the decision of capital structure or capital structure formation of private commercial Banks.
- To investigate which bank-specific factors affecting capital structure decisions in banking industries.
- To investigate what industry-specific factors affecting capital structure decisions in banking industries.
- To investigate what macro-economic factors affecting capital structure decisions in banking industries.

1.5 Significance of the Study

This study is considerable to examine determinants of the capital structure decisions in private commercial banks in Ethiopia. The study will help the National Bank of Ethiopia (NBE), all commercial banks in Ethiopia, and all the founding commercial banks, and especially the all stakeholders, in order to make advanced decisions by saving their impact of time on data collection. In addition, important to academician to increase the body of knowledge and fill the gap of the literature by showing the major determinants of the capital structure of the private commercial Bank of Ethiopia.

1.6 Scope & Limitation of the Study

The scope of this study will be limited to the relationship between leverage and independent variables which are tangibility, profitability, Bank Size, Non-debt tax shields, age, inflation, Efficiency Ratio, exchange rate, interest rate, growth opportunity and liquidity. This study has focused only on private banks of Ethiopia and its gathering data is only the period of time from 2014-2020 G.C. When conducting the study, may have the problem to available organized data from all selected banks. Accordingly, the study will be drop the data of bank that is not available date within the specified period.

1.7 Organization of the Paper

The study has five chapters. The first chapter is the introduction of the thesis and it gives information on the background of the study, statement of the problem, Research Question and objectives, research significance, scope and limitation of the study. The second chapter contains extensive literature review both in theoretical and empirical studies including literature knowledge gap. The third chapter deals with research design and methodologies adopted during the course of the study. The fourth chapter will concern with the findings and discussions of the study. Finally, chapter five will propose the summary, conclusion and relevant recommendations based on the research findings.

CHAPTER TWO

2. LITERATURE REVIEW

This chapter has two main sections; one is theoretical literature and the other is empirical literature. Theoretical literature is regarding capital structure theories, definition of capital structure, optimal capital structure, other terms definition and variables that affects capital structure decisions.

Empirical review: concerning and review several past abroad and local studies conducting on capital structure decisions factors. Finally, conclusions on the literature review and knowledge gaps presented.

2.1 Theoretical Literature

Capital Structure decision choices affect a firm's ROE and its risk. For a number of reasons, we would expect capital structures to vary considerably across industries. Academics and practitioners have developed a number of theories, and the theories have been subjected to many empirical tests. The following sections will present several of theories which are reviled by researchers.

2.1.1 Irrelevancy Theory (Modigliani-Miller Theorem)

The theory of business finance in a modern sense starts with the Modigliani and Miller (1958) capital structure irrelevance proposition. Before them, there was no generally accepted theory of capital structure. Modigliani and Miller (1958) argued that capital structure is irrelevant to the value of a firm under perfect capital market conditions with no corporate tax and no bankruptcy cost. This implies that the firm's debt to equity ratio does not influence its cost of capital. A firm's value is only determined by its real asset, and it cannot be changed by pure capital structure management. Consequently, it means that there is no optimal structure.

Modigliani and Miller start by assuming that the firm has a particular set of expected cash flows. When the firm chooses a certain proportion of debt and equity to finance its assets all that it does is to divide up the cash flows among investors. Investors and firms are assumed to have equal access to financial markets, which allows for homemade leverage.

The investor can create any leverage that was wanted but not offered, or the investor can get rid of any leverage that the firm took on but was not wanted. As a result, the leverage of the firm has no effect on the market value of the firm.

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

2.1.2 The pecking order theory

The theory argues that firms follow a financing hierarchy to minimize the problem of information asymmetry between the firm's managers and the shareholders. In this situation, a firm first raises capital internally by reinvesting its net income and selling its short-term marketable securities. When that supply of funds has been exhausted, the firm will issue debt and perhaps preferred stock. Only as a last resort will the firm issue common stock (Myers & Majluf, 1984)

In Myers and Majluf (1984), outside investors rationally discount the firm's stock price when managers issue equity instead of riskless debt. To avoid this discount, managers avoid equity whenever possible. The Myers and Majluf Model predicts that managers will follow a packing order, using up internal funds first, then using up risky debt, and finally resorting to equity.

Pecking order theory is developed by Myers and Majluf (1984) which stated that capital structure driven by firms desire to finance new investments, first internally, then with low risk debt, and finally if all fails, with equity. Therefore, firms prefer internal financing to external financing. The pecking order theory discussed the relationship between asymmetric information and investment and financing decisions. According to this theory, informational asymmetry, which firm's manager or insider have inside

information about the firm's returns or investment opportunities, increases the leverage of the firm with the same extent. So due to the asymmetric information and signaling problems associated with external financing, the financing choices of firms follow an order, with a preference for internal over external finance and for debt over equity.

The pecking order theory does not take an optimal capital structure as a starting point, but instead asserts the empirical fact that firms show a distinct preference for using internal finance (as retained earnings or excess liquid assets) over external finance. If internal funds are not enough to finance investment opportunities, firms may or may not acquire external financing, and if they do they will choose among the different external finance sources in such a way as to minimize additional costs of asymmetric information.

2.1.3 The Trade-off Theory

In which firms trade off the benefits of debt financing (favorable corporate tax treatment) against higher interest rates and bankruptcy costs. In essence, the trade-off theory says that the value of a levered firm is equal to the value of an unlevered firm plus the value of any side effects, which include the tax shield and the expected costs due to financial distress.

The results of Modigliani and Miller also depend on the assumption that there are no bankruptcy costs. However, bankruptcy can be quite costly. Firms in bankruptcy have very high legal and accounting expenses, and they also have a hard time retaining customers, suppliers, and employees. Moreover, bankruptcy often forces a firm to liquidate or sell assets for less than they would be worth if the firm were to continue operating.

In all of these theories, a decision maker running a firm evaluates the various costs and benefits of alternative leverage plans. Often it is assumed that an interior solution is obtained so that marginal costs and marginal benefits are balanced. The original version of trade-off theory grew out of the debate over the Modigliani-Miller Theorem. When corporate income tax was added to the original irrelevance theory, this created a benefit for debt in that it served earnings from taxes. Since the firm's objective function is linear, and there is no offsetting cost of debt, this implied hundred percent debt financing.

2.1.4 The Market Timing Theory

Baker and Wurgler (2002) have suggested a new theory of capital structure that is the “Market timing theory of capital structure”. This theory states that the current capital structure is the cumulative outcome of past attempts to time the equity market. Market timing implies that firms issue new shares when they perceive they are overvalued and that firms repurchase own shares when they consider these to be undervalued.

2.1.5 Capital Structure

A firm’s capital structure decision includes its choice of a target capital structure, the average maturity of its debt, and the specific types of financing it decides to use at any particular time. As with operating decisions, managers should make capital structure decisions, managers should make capital structure decisions that are designed to maximize the firm’s intrinsic value growth in sales requires growth in operating capital, often requiring that external funds must be raised through a combination of equity and debt (Brigham, 13 ed, pg599).

The firm’s mixture debt and equity is called capital structure. Although actual levels of debt and equity may vary somewhat overtime, most firms try to keep their financing mix close to a target capital structure. The capital structure is how a firm finances its overall operations and growth by using different sources of funds. Debt comes in the form of bond issues or long-term notes payable, while equity is classified as common stock, preferred stock or retained earnings. Short-term debt such as working capital requirements is also considered to be part of the capital structure. So, a firm's capital structure can be a mixture of long-term debt, short-term debt, common equity and preferred equity. A company's proportion of short- and long-term debt is considered when analyzing capital structure. When analysts refer to capital structure, they are most likely referring to a firm's debt-to-equity (D/E) ratio, which provides insight into how risky a company is. Usually, a company that is heavily financed by debt has a more aggressive capital structure and therefore poses greater risk to investors. This risk, however, may be the primary source of the firm's growth.

A capital structure is all about portion of debt and equity. Debt is the main way of raising capital in the capital markets. Companies issue debt because of the tax advantage. Interest

payments are tax-deductible. Debt also allows a company or business to retain ownership, unlike equity. Additionally, in times of low interest rates, debt is abundant and easy to access. But, Equity is more expensive than debt, especially when interest rates are low. However, unlike debt, equity does not need to be paid back if earnings decline. On the other hand, equity represents a claim on the future earnings of the company as a part owner. Both debt and equity can be found on the balance sheet. The assets listed on the balance sheet are purchased with this debt and equity.

Companies that use more debt than equity to finance assets have a high leverage ratio and an aggressive capital structure. A company that pays for assets with more equity than debt has a low leverage ratio and a conservative capital structure. That is, a high leverage ratio and/or an aggressive capital structure can also lead to higher growth rates, whereas a conservative capital structure can lead to lower growth rates. It is the goal of company management to find the optimal mix of debt and equity, also referred to as the optimal capital structure.

While formulating or amending its capitalization structure, a company has to consider the pros and cons of various sources of capital. For example, equity capital is dilutive, but places less demands on the financial strength of a company. On the other hand, interest payments on debt are generally tax-deductible, but debt increases leverage and, hence, the risk profile of the company. Although firms in the same business sector will generally have a similar capitalization structure, it varies widely across different sectors. For example, companies in the technology and biotechnology sectors have a capital structure that consists almost entirely of equity or common stock, since they have few tangible assets that can be used as security for debt. On the other hand, debt forms a significant proportion, often exceeding 50%, of the capitalization structure of utilities, due to the capital-intensive nature of their business.

The choice between using long-term debt and other forms of capital namely preferred and common stock or categorically called equity is a balancing act to build a financing capital structure with lower cost and less risk. Long-term debt can be advantageous if a company anticipates strong growth and ample profitability that can help ensure on-time debt repayments. Lenders collect only their due interest and do not participate in profit sharing

among equity holders, making debt financing sometimes a preferred funding source. On the other hand, long-term debt may be risky when a company already struggles with its business, and the financial strain imposed by the debt burden may well lead to insolvency.

2.1.6 Optimal Capital structure

In search of optimal capital structure, firm is striving for such balance where value of a firm and value of equity are maximized. In other words, Executives are supposed to do such decisions to choose the best possible distribution between equity and debt Jukka, (2015). An optimal capital structure is the best debt-to-equity ratio for a firm that maximizes its value. The optimal capital structure for a company is one that offers a balance between the ideal debt-to-equity ranges and minimizes the firm's cost of capital. In theory, debt financing generally offers the lowest cost of capital due to its tax deductibility. However, it is rarely the optimal structure since a company's risk generally increases as debt increases.

A company's ratio of short- term and long-term debt should also be considered when examining its capital structure. Capital structure is most often referred to as a firm's debt-to-equity ratio, which provides insight into how risky a company is for potential investors. Determining an optimal capital structure is a chief requirement of any firm's corporate finance department. Capital structure is defined as the way a firm finances its investment via some combination of equity and debt. Despite being different in nature, debt and equity complement each other as source of finance for firm's investment projects. The main concern is to figure out the best mix of both (Fauzias et.al, 2011).

Companies can raise capital with either debt or equity. Each strategy has its own advantages and disadvantages. Debt usually costs less than equity due to tax advantages, especially when rates are low. However, debt also obligates the company to pay out a portion of future earnings, even when earnings are declining. By contrast, equity does not need to be paid back. However, equity comes with an exchange of ownership. Most companies use a mix of both debt and equity to raise capital. This mix is referred to as the capital structure. It is the goal of most public companies to operate at an optimal capital structure to maximize profits.

There are different explanatory variables that explain leverage of the firms. The total asset of the firm will be taken as a base to measure its size. Natural logarithm of total asset will be used. Since the information disclosed by larger firms is more visible to outsiders than for smaller firms, size may be considered as a proxy for asymmetry information for outside investors. However, the negative relationship between firm size and leverage ratio is proposed by the pecking order theory as, in the absence of long-term debt, smaller firms would make more use of short-term debt. Due to the asymmetric information, smaller firms face higher costs for issuing new equity compared to large firms Ting, (2014).

2.1.7 Equity Financing

Equity financing is the process of raising capital through the sale of shares. By selling shares, they sell ownership in their company in return for cash, like stock financing.

Firms raise capital through equity financing by selling the ownership of their Shares. An ownership stake can be given to friends and family for small businesses or to the public through an initial public offering (IPOs) for large-cap firms, leaders in their industry. The main advantage of equity financing is that firms do not have to pay back the capital or interest associated with it like debt financing.

Instead, the shareholders participate in the firm through owning the firms' shares and exercise a certain extent of control over the business decisions. Furthermore, because equity investors invest their money to the firm, they undertake the risk of business failure, expecting a higher return on investment. Therefore, they are looking for growth opportunities. Generally, equity financing is preferred when a firm is in its early stages seeking to raise funds and increase its cash flows.

If a firm doesn't use debt financing it's referred to as an unlevered firm. This brings about what is referred to as business risk which is defined as riskiness inherent in the firm's operations if it doesn't use debt. If a firm doesn't use debt then its return on invested capital shall be measured by return on equity which is denoted by net income to common stock holders divided by common equity. This simply means that the business risk of a leverage free firm will be measured by the standard deviation of its Return on equity (Brigham, E.F., & Houston, J.F., 2007)

2.1.8 Debt Financing

When a company borrows money to be paid back at a future date with interest it is known as debt financing. It could be in the form of a secured as well as an unsecured loan. A firm takes up a loan to either finance a working capital or an acquisition.

Debt financing is borrowing money from a third party, i.e. a financial institution, with the promise to return the principal with an agreed interest. Startup companies and smaller firms use debt as a way to leverage their operations and maintain ownership of their business.

The greatest advantage of financing with is the tax deductions, as in most cases, debt related an interest payment is viewed as a business expense on the firm's balance sheet. On the downside, an increase in the interest rates will have an impact on the loan repayment and on the credit rating of the borrower. Also, the firm uses its assets as collateral for the loan to obtain a higher line of credit; thereby, in the case of a default, the borrower may be required to repay the remaining loan and interest in cash.

When a firm decides to use debt financing for its operations it's faced with a financial risk and it's referred to as a levered firm. Financial risk is an additional risk placed on common stock holders as a result of the decision to finance using debt. Financing risk is the probability that the earnings of the firm will not be as projected because of the method of financing.

And also, Financing risk arises because debt has a fixed financing obligation usually in the form of interest which must be met when the obligation falls due before the shareholders can share in the retained earnings. (Brigham, E.F., & Houston, J. F., 2007)

2.1.9 Define explanatory variables

There are different explanatory variables that are profitability, tangibility, banks' size, age, liquidity, & Growth opportunity, industry-factor that are corporate tax rate and non-debt tax shields, and external factors that reflecting macroeconomic conditions such as inflation rate, interest rate, exchange rate explain the capital structure of the firms and the developed hypotheses are discussed below

Profitability: -In the trade-off theory, agency costs, taxes, and bankruptcy costs push more profitable firms toward higher book leverage. First expected bankruptcy costs decline when profitability increases. Second, the deductibility of corporate interest payments induces more profitable firms to finance with debt. In a trade-off theory framework, when firms are profitable, they prefer debt to benefit from the tax shield. In addition, if past profitability is a good proxy for future profitability, profitable firms can borrow more, as the likelihood of paying back the loans is greater (Jensen, 1986; MacKay and Phillips, 2005).

According to various theories and empirical researches, profitability factor is considered as one of the major firm specific factors that determine capital structure of a firm. For instance, pecking order theory argues a negative relation of profitability and leverage, implying that more profitable firms will become less levered through time due to utilization of internally generated cash flows for financing their operation. In line with pecking order theory, majority of empirical researches including Naveed et al. (2010), Bayeh (2011), Woldemikael (2012) and Saddam (2014) confirmed such a negative relation between profitability and leverage. But, the results of on the other hand study suggested that profitability found to be significant factors affecting leverage of commercial banks in Ethiopia confirming tradeoff and pecking order theories as prominent theories for the sector (Melkie 2017),(sewnet, 2017).

Therefore, the first hypothesis is:

Hypothesis 1: Profitability significantly and positively/negatively affects leverage ratio

A tangible Asset is an asset that has a material or physical form anything that can be touched. The firm's asset structure plays an important role in determining its capital structure. It is easier for the lender to establish the value of tangible rather than intangible assets because typically there is more asymmetric information about the value of intangibles. Moreover, in the event of bankruptcy, intangible assets such as goodwill and structural capital will rapidly disappear. Thus, reducing the net worth of a firm and further accelerating the possibility of bankruptcy (Loof, 2003).

Tangibility is the nature of the assets which can assist outsiders in their valuation of firms. The tangible assets mainly refer to property, plant and equipment assets which can

be used as collateral. When firms hold more tangible assets, the risk for lenders is low, therefore reducing the expected financial distress. In this case, the positive prediction can be given due to the impact of tangibility on capital structure. According to the agency theory, the negative relationship between tangibility and debt finance is caused by the close monitoring function of bondholders. It is difficult for managers to consume excessive perquisites from highly leveraged firms. The costs incurred from this agency relationship are normally higher for firms with fewer tangible assets. Therefore, it is a voluntary decision by firms with fewer tangible assets to choose higher debt levels, thus controlling the consumption of perquisites Ting, (2014). On the practical some empirical study result shows tangible asset statistically significant and have positive relationship with leverage (Melkie 2017),(sewnet, 2017). Therefore, the second hypothesis is:

Hypothesis 2: Tangibility significantly and positively/negatively affects leverage ratio.

Banks' size

Jensen (1986) indicates a positive relationship between size and debt usage because equity financing is costlier to large firms than small firms, suggesting that debt issuing is the better alternative for big firms, which have more incentives to use debt to improve their production process. According to the trade-off theory, large companies should borrow more because these firms are more diversified with less possibility of bankruptcy while small companies should operate with low leverage because they may face financial distress and be liquidated. Furthermore, innovation and competitive market changes are adopted easily by large corporations compared with new firms and small and medium enterprises because of the high amount of resources for investment activities of large firms (Tulcanaza et al , 2019). Large companies have lower agency costs of debt caused by low monitoring costs for their less volatile cash flows and their easy access to capital markets, predicting a positive relationship between size and leverage (Shah & Manja, 2018). Findings from in local study (Saddam, 2014; ; Usman 2013 Daniel, 2011; Amanuiel, 2011) indicate that the size of a firm is significantly positively correlated with leverage in different companies.

By contrast, pecking order theory suggests a negative relationship between size and debt caused by the less severe information asymmetry in large companies. Thus, rationally,

small firms might borrow short-term bank loans instead of engaging long-term debt (Sheikh & Wang, 2010).

To sum up, the relationship between size and leverage is positively supported by the trade-off and agency cost theories while size might have a negative relationship with leverage according to the pecking order theory and also insignificant for capital structure decision (Aemen, 2017; Daniel, 2015; Bayeh, 2011;). Thus, the third hypothesis is:

Hypotheses 3: Bank size significantly and positively/negatively affects leverage ratio.

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 (Abor, 2008).

In addition experience enables the firm expertise in finding alternative credit source cost effectively or in favorable terms when going for debt capital. This induces a positive relationship between leverage ratios and age of the firm. As firms became aged; the long years of track record will enable them to easily convince creditors. Thus, the Fourth hypothesis is:

Hypothesis 4: Age significantly and positively/negatively affects leverage ratio.

Growth opportunity:-

Growth opportunity is the development opportunity of a firm in the future. (and Song, 2006). The other definition of growth opportunity is the change of the firm total assets. This quantity measures how far earnings per share of a firm can be inclined by leverage. Firms with rapid growth sometimes must increase its fixed assets. Therefore, firms with rapid growth need more funds in the future and more retained earnings. Retained earnings from firms with rapid growth will increase and those firms will deal more with debt to maintain the targeted equity ratio (Huang and Song, 2006). Firm which is predicted to have rapid growth in the future tends to choose using stock to finance the operational of the firm. Therefore, the fifth hypothesis is as follows:-

Hypothesis 5: Growth opportunity significantly and positively/negatively affects leverage ratio.

Liquidity: - is usually used to measure the liquidity of a firm by using current asset and current liabilities. It can use to measure the ability of the firm to fulfill its short term obligation Ong, Sia, Tan, Teo and Wong(2016) cited (Wahab and Ramli ,2013). Liquidity ratios have a mixed effect on the capital structure decision. Agency theory, information asymmetry, and the pecking order theory emphasize a negative relationship between liquidity and debt ratio. Companies with a high level of liquidity will have low debt financing because managers are more likely to use internal funds to finance their personal projects, and lenders may not be satisfied with firms' administration if managers take liquid resources to benefit shareholders (Ong, Sia, Tan, Teo and Wong(2016) cited (Wahab and Ramli,2013).

On one hand, Morellec (2001) finds a positive relationship between liquidity and leverage under the assumptions of the trade-off theory, which mentions that highly liquid companies have more ability to meet debt obligations and will borrow more. In accordance with the trade-off theory indicating that liquidity is significantly positively correlated with financial leverage (Awan and Amin,2014). Therefore the sixth hypothesis is: Hypothesis 6: Liquidity significantly and positively/negatively affects leverage ratio.

Efficiency ratios, also known as activity ratios, are used by analysts to measure the performance of a company's short-term or current performance. All these ratios use numbers in a company's current assets or current liabilities, quantifying the operations of the business.

An efficiency ratio measures a company's ability to use its assets to generate income. For example, an efficiency ratio often looks at various aspects of the company, such as the time it takes to collect cash from customers or the amount of time it takes to convert inventory to cash. This makes efficiency ratios important, because an improvement in the efficiency ratios usually translates to improved profitability.

These ratios can be compared with peers in the same industry and can identify businesses that are better managed relative to the others. Some common efficiency ratios are accounts receivable turnover, fixed asset turnover, sales to inventory, sales to net working capital, accounts payable to sales and stock turnover ratio.

In the banking industry, an efficiency ratio has a specific meaning. For banks, the efficiency ratio is non-interest revenue / expenses. This shows how well the bank's managers control their overhead (or "back office") expenses. Like the efficiency ratios above, this allows analysts to assess the performance of commercial and investment banks.

Hypothesis 7: efficiency ratio significantly and positively/negatively affects leverage ratio.

Non-debt tax shields (NDTS):- is inversely related to debt usage and it is favorable to the firms when the benefit from the interest tax shield is reduced, which is consistent with the trade-off theory (Awan & Amin, 2014). The effective tax rate has been used as a possible determinant of the capital structure choice. If interest payments on debt are tax-deductible, firms with positive taxable income have an incentive to issue more debt. That is, the main incentive for borrowing is to take advantage of interest tax shields (Modigliani and Miller, 1958).

Accordingly, in the framework of the trade-off theory, one hypothesizes a negative relationship between leverage and non-debt tax shields. DeAngelo and Masulis (1980) argue that the marginal corporate savings from an additional unit of debt decreases with increasing non-debt tax shields. This is because of the likelihood of bankruptcy increases with leverage. Tax deductions for depreciation and investment tax credits are substitutes for the tax benefits of debt financing (De Angelo and Masulis, 1980). As a result, firms with large non-debt tax shields relative to their expected cash flow include less debt in their capital structures. Therefore the seventh hypothesis is:-

Hypothesis 8: Non-debt tax significantly and positively/negatively affects leverage ratio.

Inflation can be defined as a persistent increase in general price levels in an economy over the time. Low or medium levels of inflation in a country can have a positive effect on the business sector, in that it can act as an incentive to production. High levels of inflation however can harm Firm's profitability by affecting the cost of inputs as well as reducing final demand for its output. Ultimately the effect of inflation on a firm is determined by the nature of its operations as well as its competitive environment (Charles

and et al 2013). Inflation is the rate at which the general level of prices for goods and services is rising and, consequently, the purchasing power of currency is falling. As inflation rises, every dollar you own buys a smaller percentage of a good or service. When prices rise, and alternatively when the value of money falls, there is inflation.

Firms assess the sensitivity of market risk through fluctuations in interest rate, foreign exchange rates and equity prices. Market risk is the outcome of trading, non-trading and foreign exchange activities. Firm's earning capability is influenced through the variation in these variables and sensitivity to market risk determines how adversely the firm is affected by such variation (Parvesh, 2014). Thus, the ninth hypothesis is :-

Hypothesis 9: Inflation significantly and positively/negatively affects leverage ratio.

Interest rate;- Interest is the cost of debt financing, and an increase in the interest rate would generally lead to a decrease in debt financing. This is supported by Mokhova and Zinecker (2014) even if they argue that higher interest would motivate profit-driven banks to increase loans to the private sector. Considering trade-off theory, Frank and Goyal (2009) stated that the tax benefit of interest reduces the tax burden. The tax shield is therefore an important reason behind a firm's adjustment of its capital structure, shown by the positive relationship between tax and debt in their study. Empirical findings have also been conflicting, as Bokpin (2009) found a significant positive relationship between interest rate and leverage, and Dincergok and Yalciner (2011) found a negative relationship, with both studies investigating emerging economies. Therefore, this studies tenth hypothesis is as follows:-

Hypothesis 10: Interest rate significantly and positively/negatively affects leverage ratio.

Exchange rate :-

An exchange rate is the value of a country's currency vs. that of another country or economic zone. Most exchange rates are free-floating and will rise or fall based on supply and demand in the market. Some currencies are not free-floating and have restrictions.

The exchange rate expresses the national currency's quotation in respect to foreign ones. For example, if one US dollar is worth 30 birr, then the exchange rate of dollar is 30 Birr. If something costs 30 Birr, it automatically costs 1 US dollars as a matter of accountancy. Going on with factious numbers, an Ethiopian Birr GDP of 3 million birr would then be worth 100,000 Dollars. Thus, the exchange rate is a conversion factor, a multiplier or a ratio, depending on the direction of conversion. In a slightly different perspective, the exchange rate is a price. If the exchange rate can freely move, the exchange rate may turn out to be the fastest moving price in the economy, bringing together all the foreign goods with it (Azid et al, 2005).

Interest rates primarily influence a corporation's capital structure by affecting the cost of debt capital for equity capital; this cost is determined by calculating the rate of return on investment shareholders expect based on the performance of the wider market and the volatility of the company's stock. Thus, the eleventh hypothesis is as follows:-

Hypothesis 11: Exchange rate significantly and positively/negatively affects leverage ratio.

2.2 Empirical Review

The empirical literature of this study is done by looking in to the researches done on capital structures, identifying the findings of the research and by comparing the results with the results of predecessor or successor researches done on the determinant factors of capital structure decision.

Under this section review some papers which are some from abroad and from local studies.

2.2.1 Studies with reference to abroad context

The paper of Aida M.ZeinPer Angstrom (2016) examined the relationship between leverage and a number of macroeconomic indicators. This paper use market and accounting data of public non-financial traded companies in Sweden. As the result shows Macroeconomic factors that show some significance for proxies of capital structure are GDP growth and exchange rate with USD that show a negative relationship with debt as well as corporate tax rate that show a positive relationship with debt. Moreover, interest

rate show positive relationship with debt and inflation has a negative relationship with debt.

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

Emil and Andreas (2012) have studied on capital structure in the airline industry- an Empirical Study of Determinants of Capital Structure taking sample of 39 international airlines. They have used two dependent variables and obtained positive significant estimates for Collateralize value of asset (CVA) and leasing for both models. They were surprised by the significant positive estimates to the leasing variables, which were the opposite of their expectations. Size was the only estimate other than CVA and leasing that had significant estimates in the book model. They obtained significant estimates for profit in the market model. They considered as if surprising to find that growth produced no significant estimates, while profit and size only was significant for one of the models. The growth factor is a significant factor of capital structure.

Ahmad (2015) studied the determinants of capital structure: empirical evidence from Kuwait. The researcher has used 6 years' data of 49 industrial and service firms of Kuwait and found that growth opportunity, firms' age, liquidity, profitability, size, tangibility, and industry type have statistically significant relationship with firm's leverage. Dividends policy and ownership structure of the firm, however, were found to have negative but statistically insignificant relationships with capital structure. The growth found it as insignificant factor for leverage.

Songul, (2015) studied The Determinants of Capital Structure: Evidence from the Turkish Manufacturing Sector. The researcher has taken 8 years of data from 79 firms in the

manufacturing sector traded on Istanbul stock exchange and found that there are significant relationships between growth opportunities, size, profitability, tangibility and leverage variables. But non-debt tax shields explanatory variable has insignificant effect on leverage.

Amidu (2007) the determinants of capital structure of Ghanaian banks study has highlighted the importance of distinguishing between long and short forms of debt while he made inferences about capital structure.

Amidu (2007) specifically tested the significance of bank size, profitability, corporate tax, growth, asset structure, and risk in determining bank capital structure. The result showed that short-term debt of banks is negatively related to banks profitability, risk, and asset structure and positively related to bank size, growth and corporate tax. On the other hand, the long-term debt of the banks is positively related to banks' asset structure and profitability and inversely related to bank risk, growth, size and corporate tax. Generally, the variables examined were consistent with the static trade-off and pecking order arguments, with the only exception being risk.

For non-financial sector environment of Africa a study made by Tesfaye and Minga (2012) in context of nine African countries including Botswana, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, South Africa, and Tunisia found size, tangibility, profitability, dividend payout, and non-debt tax shields as major firm specific factors affecting financing choice of firms in these nine countries. They also found profitability to have a negative association with leverage; whereas size appears a positive impact on leverage of firms operating in the countries investigated. Furthermore, their paper explained that both non-debt-related tax shield and asset tangibility were directly related to long-term debt while they were negatively related with short term debt. Tesfaye and Minga (2012) also emphasized that dividend payout factor negatively influences leverage in terms of long-term debt.

A study conducted by Ayanda et al. (2013) in case of Nigerian banking sector examined the relationship between total leverage ratio with independent variables of Size, Dividend Payout, Profitability, Tangibility, Liquidity, Growth, and Tax charge over the period of five years from 2006-2010. Their regression result implied that firm size, dividend

payout, profitability, tangibility of assets, growth opportunity, risk, and tax charge were significant factors that influence financing decision of firms in Nigerian banking sector during the study period. More specifically, they found out that tangibility, tax charge, growth opportunity, profitability, and risk to have a negative impact on leverage while firm size and dividend payout factors appeared a direct relationship with total leverage.

It is observed that there were relatively few studies that have been conducted in relation with macroeconomic or external determinants of capital structure as compared to firm specific determinants. Similarly speaking, majority of empirical studies in the past were focused only on assessing firm specific determinants of capital structure. But, some researchers assessed the relationship between macroeconomic or external variables and firms' leverage and they found their significance in determining a capital structure.

For instance, Muhammad et al.(2009) on their study from three Asian countries of Japan, Malaysia, and Pakistan; examined the impact of per capita GNP, prime lending rate, financial liberalization, efficiency of financial markets, enforcement, and creditor's rights on leverage as measured by total debt, long term debt, and debt to equity ratios for the period of ten years from 1996-2005.

Their study result pointed out per capital GNP growth, prime lending rate, financial liberalization, financial markets efficiency, enforcement, and creditors' rights as major macroeconomic or external factors that affect firms' leverage on aggregate in the three countries. More specifically, their study revealed that financial liberalization and efficiency of financial markets had a significant positive relationship with leverage whereas; creditors' rights and enforcement appeared a significant negative relationship with the dependent variable. Muhammad et al. (2009) also found that per capita GNP and prime lending rate were major determinants of capital structure for Japan and Malaysia while financial liberalization was the most decisive factor that affects leverage in all of the three countries.

Bokpin (2009) evidence from 34 emerging market economies; found bank credit, GDP per capita, inflation, and interest rate as significant factors that determine capital structure.

More specifically, the findings of similar study revealed that bank credit had a positive and statistically significant impact on financial leverage and the choice of short-term debt over equity. He also indicated a significant negative relationship between GDP per capita and capital structure choices; whereas inflation on the other hand found to have positive influence on the choice of short-term debt over equity. Furthermore, Bokpin (2009) also found that stock market development was insignificant in predicting capital structure decision of firms; while increasing interest rate positively influences firms to substitute long-term debt for short-term debt over equity in the countries investigated.

2.2.2 Studies with reference to Local context

There have been a few studies on various firm specific determinants of capital structure. These studies include Amen (2017), Ahmed (2017), Yohannes (2017), Saddam (2014), Mohammed (2014), Amanuel (2011), and Bayeh (2011).

Amen Sewunet (2017) according to his study examines the major determinants of Capital Structure in the three major Airlines of Sub-Saharan Africa. The researcher identified variables that are the company specific factors are profitability, tangibility, liquidity and size; external factors are GDP, inflation and currency exchange rate and industry specific factor of Risk. Accordingly the researcher has selected three potential major airlines of SSA, from year 2002 to 2015. The result from Regression analysis shows that Profitability is statistically significant but has negative relationship with leverage of these major airlines of sub Saharan Africa .Tangibility is both positive and significant variable to leverage with in the study period. Firm size is statistically significant but has negative relationship with leverage .Inflation is both positive and significant variable to leverage ,Risk is both positive and significant variable to leverage and Liquidity, GDP and Currency exchange rate were not statistically insignificant variable to leverage of these major airlines of sub Saharan Africa with in the specified period.

This study concluded profitability, risk, tangibility, firm size and inflation significantly affect the major airlines of sub Saharan Africa between the periods of 2002-2015. The other explanatory variables GDP, currency exchange rate and liquidity have found to be statistically insignificant variables to leverage of these airlines within this time period.

Ahmed Melki (2017) examine firm specific (i.e. profitability, age and tangibility) and macroeconomic (i.e. GDP growth rate and interest rate) factors' impact on financing decision of commercial banks in Ethiopia thereby to identify prominent theory for banking sector of the country. In order to achieve such aim, the researcher used quantitative research approach and selecting six commercial banks which were established before 2004 as a sample. The nature of data used by this study was a panel data mainly composed of financial statements of sample commercial banks and NBE reports over the period of 2004 – 2016.

The result was that profitability has a negative and statistically significant impact on leverage of Ethiopian commercial banks. In line with the hypothesis, the results of age, collateral, Interest rate and GDP growth showed positive and statistically significant effect on leverage of banks..

Yohannes Estifanos (2017):- The main objective of his research is to identify factors that affect the capital structure of commercial banks in Ethiopia. And only fourteen banks information were used in his study to examine the determinants of capital structure. He used eight explanatory variables which are profitability, bank growth, bank size, dividend, liquidity, asset tangibility, net debt tax shield and risk. Random effect panel regression method was used for the model selected. The result of regression method shows that growth had positive and significant relationship with leverage and it is the most determinant factor for the formation of capital structure of commercial banks in Ethiopia for the study period. The result supported by peaking order theory. Dividend and Net tax shield had positive and significant relationship with leverage ratio, high dividend paid banks were expose to external source of debt financing. The increase or decrease in dividend has significant impact on leverage.

The explanatory variables, Liquidity and Asset tangibility had negative and significant relationship with leverage ratio in listed commercial banks in Ethiopia for the study period. The increase or decreases on any of these variables have significant impact on leverage indifferent direction. The results suggest that high liquidity and asset tangibility ratio of banks will enable to manage high debt ratios. The providers of the debt capital

are more willing to lend to banks with high liquidity and asset tangibility as they are perceived to have lower risk levels.

Concerning the other variables profitability has shown insignificant and negative relationship with leverage. This shows that the capital structure of bank is indifferently affected by this determinant variable. At macro level economic growth and inflation also have insignificant and positive relationship with leverage ratio. On the other hand variables like size of banks and risk have insignificant and positive relationship with leverage ratio. The increase or decrease in any of positively related variable have the same result in leverage ratio.

In conclusion, the finding of his study suggests that growth, dividend, liquidity, asset tangibility and net debt tax shield were important variables that influence banks' capital structure, for the study period 2011 to 2016. However, there were no support of profitability, bank size, risk, economic growth and inflation influencing the level of leverage of commercial banks in Ethiopia. But no clear and statistical proved relations were obtained for the variables Interest rate and age of the firm in any of the capital structure models.

Saddam (2014) the general objective of this study was to examine firm specific (i.e. profitability, liquidity, business risk, size, growth opportunity, age) and macroeconomic (i.e. GDP growth rate, interest rate, inflation rate) factors' impact on financing decision of insurance firms in Ethiopia thereby to identify prominent theory for insurance sector of the country. In order to achieve such aim, the researcher used quantitative research approach and selecting ten insurance companies purposively as a sample. The nature of data used by this study was a panel data mainly composed of financial statements of sample insurance companies over the period of 2007-2008 and NBE reports over the period of 2007-2013, which was collected through document review method. To conclude, based on his study business risk, firm size, age, and inflation rate variables were found to be significant factors that affect capital structure decision (as represented by total leverage) of Ethiopian insurance firms, confirming trade off and pecking order theories as prominent theories for the sector. More specifically, among the two; tradeoff

theory is found as the most influential theory for firms than pecking order theory in context of Ethiopian insurance sector.

Mohammed (2014) the objective of this study was limited to the impact of capital structure on the performance in the context of Ethiopian insurance industries. This paper has applied the panel data regressions for nine insurance companies in Ethiopia during the period 2004 to 2013. Therefore, this study confirms that a negative relationship between firm leverage and performance of the firm, positive relationship between a firm's growth opportunities and performance of the firm. But, insignificant, firm size a positive and highly significant relationship for performance of Ethiopian insurance industry. a negative and significant relationship between assets tangibility and performance (ROA) of the firm. This implication that the sampled of Ethiopian insurance companies were not able to utilize the fixed asset composition of their total assets sensibly to impact positively on their performance, and the other result shows that a negative and insignificant relationship between firm liquidity and performance of Ethiopian insurance industries and business risk has positive and significant impact on performance of Ethiopian insurance industry.

The objective of the study of Amanuel (2011) was to examine the relevance of theoretical internal (firm level) factors determine capital structure of manufacturing share companies in Addis Ababa, Ethiopia. In correlation to this, samples of 12 companies were taken for the period over 2003-2010. hence, this study used seven explanatory variable which are tangibility, non-tax shield, growth, earning volatility, profitability, age and size, and three dependent variables: total debt ratio, short term ratio and long term ratio.

Coming to conclusion of regression results, only determinant factors affecting capital structure when measured in total debt ratio are tangibility, non debt tax shield, earning volatility and size. Whereas variables; growth, age and profitability do not have a statistically significant relationship with total debt ratio. Thus they are not significant factors to affect the capital structure of manufacturing share companies in Addis Ababa city. But on the other hand tangibility, non debt tax shield, earning volatility, and size of manufacturing share firms play important role in using debt from financial institutions. When similar variables are run against short term debt ratio, that are included in the

model, Two variables tangibility and profitability found to affect capital structure. This implies that non debt tax shields, earning volatility, age, and size are not significant to affect the capital structure of manufacturing share companies which related with short term debt ratio.

The regression result for the model of long-term debt ratio showed that determinant factors affecting capital structure as measured by long-term debt ratio is tangibility, non debt tax shield, earning volatility and profitability. Whereas variables growth, age and size do not have a statistically significant relationship with long-term debt ratio. It is proved that tangibility, non debt tax shields, earning volatility, profitability and size of the firm variables are the significant determinants of capital structure of Ethiopian manufacturing share companies (affecting leverage in either of both directions i.e. positively and negatively) in at least one out of the three models for capital structure employed in the study.

According to this study, while no clear and statistically proved relations are obtained for the variables growth of the firm and age of the firm in any of the capital structure models. As a result growth and age of the firm are not important factors to determine the capital structure of manufacturing share companies in Addis Ababa city.

The determinants of capital structure in the case of insurance industry in Ethiopia studied by Bayeh (2011) investigated nine insurance companies were included in the sample for the period over 2004 - 2010. In his study used seven explanatory variables: liquidity, tangibility, growth, business risk, profitability, age and size, and three dependent variables: total debt to equity ratio, total debt ratio and long term ratio to test the determinants of capital structure of insurance companies in Ethiopia.

The OLS result showed that firm's growth opportunity, profitability, liquidity, risk and age of the firm were found to have significant influence on capital structure of Ethiopian insurance companies. Specially, his study results suggested that liquidity to have a significant positive impact on long term debt and debt to equity ratios while business risk appeared a significant positive impact on debt to equity and debt ratio.

On the other hand, his study revealed that growth to have a significant negative impact on long term debt and total debt ratios while profitability appear a significant negative

impact on long term debt ratio and significant direct impact on total debt ratio. In addition, this study emphasized a positive and significant impact of firm age variable on all the three dependent variable proxies of long term debt, total debt, and debt to equity ratios. However, tangibility and size of the firm were found to have insignificant influence on capital structure of Ethiopian insurance companies recommending static trade off theory as a dominant theory for the sector.

2.3 Conclusions and Knowledge Gap

Various empirical studies also conducted regarding determinants of capital structure but almost all they were debating each other. As discussed above in the literature review there are numerous theories including MM propositions, tradeoff, pecking order, and agency cost theories those express what determines capital structure and the issue of optimal capital structure differently.

In more specific manner, besides lack of assessment in relation with internal and external factors' impact on capital structure decision, as compared to other countries there was also insufficiency of empirical studies regarding determinate factors' impact on capital structure of financial sector and overall in Ethiopia.

In addition, most empirical work on capital structure has predominantly relied on quantitative analysis of secondary data to examine the determinants of capital structure. Therefore, this study will fill the gap by examining the determinants of capital structure in the context of Ethiopian banking industry.

It is mentioned above that capital structure is determined by both internal (firm specific) and external (macroeconomic) factors. thus, the researcher in his paper try to play his role to reduce the literature gap by investigating both firm specific and macroeconomic variables of capital structure and try to investigate how to decide capital structure of the case of private commercial banks in Ethiopia.

Conceptual framework as depicted in figure 1.1 below demonstrate a potential link between independent variables with the dependent variable. In other word, it indicates the cause and effect relationship between selected firm specific as well as macroeconomic factors with capital structure of private commercial banks in Ethiopia.

2.4 Conceptual Framework

Dependent variables variables

Factors

Internal and industrial Factors

- Profitability
- Tangibility
- Bank Size
- Age of firm
- Growth opportunity
- Liquidity
- Efficiency ratio
- Non-debt tax shields

External Factors (macroeconomic)

- Inflation
- Interest rate
- Exchange rate

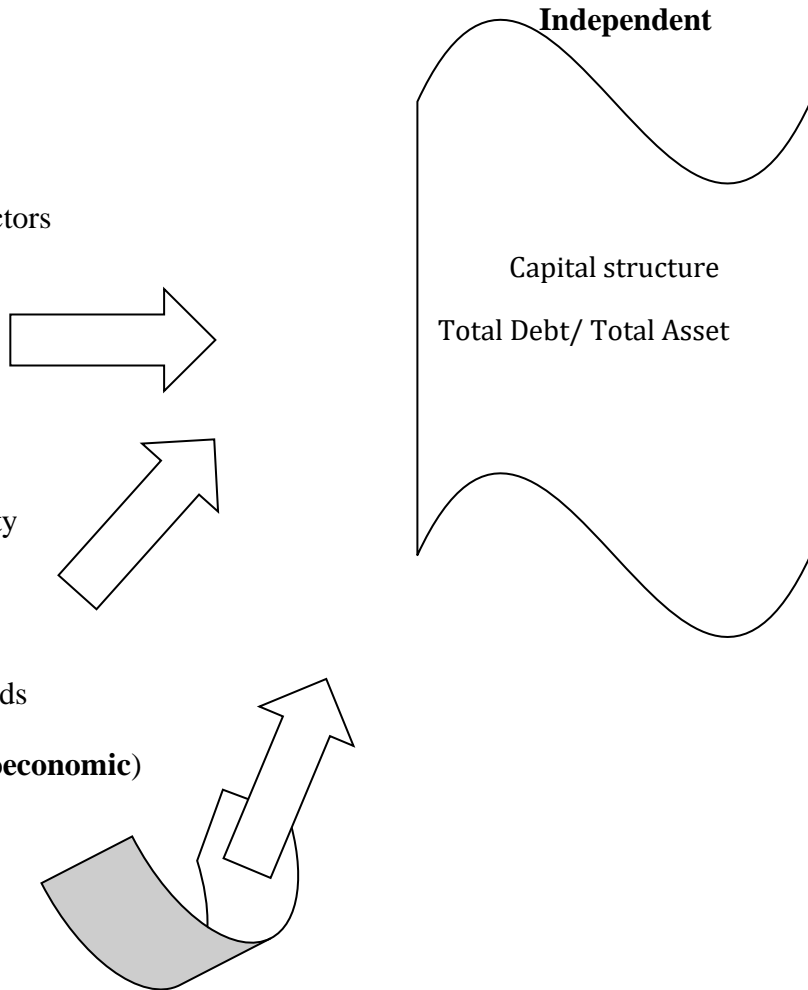


Figure 1.1: Conceptual Framework (Compiled by the researcher)

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3. Introduction

This chapter explains the researcher's methods of collecting data, analyzing and presenting findings. Accordingly, it first discusses research design, in which the theories of what kind of research are conducting for this study and how it is being developed. Second section discusses and indicated source of data, data collection techniques and tools including population, sampling and sample, Third section presented what Procedures use during the data collection process.

Finally, the last paragraphs explain about data analysis techniques or methods of data analysis which includes the description of variables and its relationship.

3.1 Research Design

The aim of this study examined the determinate of capital structure decision evidence in commercial bank of Ethiopia. Therefore, the research was employed explanatory type of research method. This method enables the design to establish causal relationship between variables in nature describe briefly the problem stated in Chapter one (Gray, 2014). Explanatory approach have preference and apply in this study because it go beyond simple description and more fit to answer for the research questions that need answer to the problem.

3.2 Research Approach

The research approach or strategy used in this study is quantitative. Research design is types of inquiry within qualitative, quantitative, and mixed methods approaches. One of them, the quantitative research is causal-comparative research in which the investigator compares two or more groups in terms of a cause (or independent variable) that has already happened (Creswell 4th edition, pg 41).

Due to nature and objectives of this study, the researcher was used a quantitative approach is used to analyze the data from various sources. Accordingly, the quantitative method mainly uses to examine determinants of capital structure of banks in Ethiopia, and the financial data was collected through structured survey of documents.

3.3 Study Population, Sampling, and Sample Size

Population as all members of any well-defined class of people, events or objects (Krieger,2012).It means therefore that any entity, group or set which constitutes a population must have at least one attribute or characteristic which is common to all of them. The population of a study therefore represents the target of the study as defined by the aims and objectives of the study.

Most of the times, the target population is too large for a researcher to study. The number of subjects may be too many for the researcher to handle with limited resources available. The geographical spread or area may be too wide to cover with the limited time for the research. As a result of cost, time and other constraints, it may be very difficult to study the entire population. It becomes necessary, reasonable and only feasible to study a portion of the population which is described as sample. When the population of the study is too large for a complete census to be taken, it becomes indispensable to take a sample out of it for an effective research (Oribhabor &Anyanwu, 2019).

According to Osuala (2007),“Sampling is taking any portion of a population or universe as representative of that population or universe.” To make a research to be effective and plausible, a reasonable portion of the population should be sampled. This would make for a reliable generalization of the findings. A sample is a set of individuals or participants selected from a larger population for the purpose of a survey (Salant & Dillman, 2004).

A sample can be defined as a group of relatively smaller number of people selected from a population for investigation purpose. An optimal sample is important for minimizing the cost of sampling error, thus indicating the need for selecting an appropriate sample size. Specifically, an appropriate sample size is necessary for any research because too small sample size is not a good representative of the population (Salkind, 2010).

According to data from the National Bank of Ethiopia, there are a total of 17 Commercial Banks of the 18 banks in Ethiopia. Development Bank of Ethiopia (DBE) primarily operates in the long-term project financing and specialized banking space. Hence, it is not considered like commercial banks.

Since they all provide the same service, the researcher used his own Judgment to take a sample. Accordingly, almost accounted 100 percent of the total population of private banks operating in Ethiopian taken in this study. Then all sixteen private banks selected starting from the recent formation up to old one and using eight years data from 2013 up to 2020 G.C. Hence, researcher using eight years data for purpose of including the recent formed banks. The name of sampling banks is listed as follows:-

Enat Bank , Dehub Global Bank , Addis International Bank , Berehan International Bank, Abay Bank , Zemen Bank , Buna International Bank, Oromia International Bank, Lion International Bank , Cooperative Bank of oromia, Dashen Bank, Nib International Bank, United Bank, Abysinia Bank, Wegagen Bank and Awash International Bank.

3.4 Source of data

The study conducted by using secondary sources of data. Secondary data was collected from annual reports of Banks, National Banks of Ethiopia and different documents. Which means secondary source of data is getting by internal & external source. There are two sources of data. When data are collected from reports and records of the organization itself, it is known as the internal source. For example, a company publishes its ‘Annual Report’ on Profit and Loss, Total Sales, Loans, Wages, etc. When data are collected from outside the organization; it is known as the external source such as World Bank, Ethiopian statistics Agency & etc.

3.5 Data collection Instruments

Document review method of data collection was used by the researcher in order to collect all the necessary information thereby to achieve objectives of the study. hence, As a secondary data collection tool for the study, document review mainly focus on reviewing audited financial statements of sixteen private commercial banks to obtain necessary figures those enable the researcher to calculate the dependent variable as well as firm internal and industrial variables. In addition to audited financial statements of private banks, NBE’s, WB’s and EEA’s reports were collected and reviewed by the researcher in order to get necessary figures regarding macroeconomic factors.

3.6 Methods of Data Analysis

The study used Panel data. Panel data was a combination of cross-sectional and time-series data. The benefits of panel data that researcher has been able to use time series and cross-sectional data to examine issues that could not be studied in either time-series or cross-sectional settings alone (Greene, 2007). Hence, the analysis of panel data was the subject of one of the most active bodies in econometrics. Besides, combining time-series of cross-section observations, panel data give more informative data, more variability; less co linearity among the variables, and more efficiency (Baltagi, 2005). Therefore by using the panel data and the data will be analyzed by using EVIEWS 8. Regression analysis uses to examine the relationship between capital structure and the independent variables.

Furthermore, multiple linear regression models to be investigate the firm-specific, industrail and macroeconomic determinants of capital structure in 16 Ethiopian Bank. Specifically, by using multiple regression analyses satisfy the ordinary least squares (OLS) assumptions that are, the normality test, homoscedasticity test, linear test of variables, serial correlation test, and multicollinearity test. Furthermore, This study follows the methodology and inferences made by previous studies which adopt OLS as a research model to examine the factors that influence the debt-equity choice in different studys (Akinyomi & Olagunju,2013; Arsov & Naumoski, 2016; Deesomsak et al., 2004; Saddam,2015; Mohamed, 2014; Amen, 2017).

3.7 Model Specification

Panel data refers to a type of data that contains observations of multiple phenomena collected over different time period for the same group of individuals, units or entities. In short, in econometrics panel data refers to a multidimensional data collected over a period of time.

A simple panel data regression can specify.

thus: $Y_{it} = a + bX_{it} + \epsilon_{it}$

Y.....dependent variable

X.....independent or explanatory variable

a, b....coefficients

i, t.....indices for individuals and time

εerror term

Fixed effects model: - this type of model allows for heterogeneity or individuality among different cross-sections allowing each cross-section to have its own intercept. In short, the intercept may be different for the cross-sections, but it is time invariant that is the intercept remains the same over time. The error term in a fixed effects model is assumed to vary non-stochastically over each entity and time. There are unique attributes of individuals which do not vary across time and is correlated with independent variables. Summarily, fixed effects models' general equation becomes the following:-

$$Y_{it} = \alpha + \beta_1 X_{1it} + \dots + \beta_k X_{kit} + u_{it}$$

Where

- Y_{it} , represents the dependent variable in the model,
- i denoting the cross-sectional dimension or entity.
- t representing the time series dimension or time.
- X_{it} contains the set of explanatory variables in the estimation model, where i = entity, t = time.
- α is the constant,
- β represents the coefficients and
- u is the error term.

Therefore, the models specification for this study derived on the above fixed effect assumption built in line with the hypotheses of the study, are given as follows:

$$Lev_{it} = \alpha + \beta_1 PRO_{it} + \beta_2 TAN_{it} + \beta_3 BZ_{it} + \beta_4 AOF_{it} + \beta_5 GRO_{it} + \beta_6 LIQ_{it} + \beta_7 NDTS_{it} + \beta_8 CRT_{it} + \beta_9 INF_{it} + \beta_{10} IR_{it} + \beta_{11} ER_{it} + u_{it}$$

Where

- Lev:- represent represents dependent variable which is Leverage ratio
- PRO:- represents Profitability variable
- TAN:-represents Tangibility
- BZ:- represents Bank size
- AOF:- represents Age of the firm
- GRO:- represents Growth opportunity
- LIQ:- represents Liquidity
- NDTs:- represents Non-debt tax shield represents s
- CRT:-represents Corporate tax rate
- INF:-represents Inflation
- IR:-represents Interest rate
- ER:-represents Exchange rate

3.8 Variable Presentation

The researcher concentrated only on twelve key variables that are considered from the three categories i.e. internal factor, Industry factor, and External (macroeconomic Factors). The dependent variable is leverage rate; hence, this research examines explanatory variables that are: tangibility, profitability, Bank size, age, liquidity, growth opportunity, Non-debt tax shields, efficiency rate, inflation rate, exchange rate, and interest rate related to the leverage ratio.

3.8.1 Dependent variable

This study is focused and investigated how different determinants influence the mix of debt to equity or leverage of a firm. The capital structure of a company consists of a mixture of equity and debt, used to finance assets, operations and future growth of a firm. Therefore, the dependent variable is leverage, which is measured or defined as:

$$\text{Leverage (LEV)} = \text{Total Debt/Total Assets}$$

3.8.2 Independent variables

Profitability: - According to similar literatures this variable measured earnings after tax per total assets (Bratlie and Jotne,2012) cited (Frankand Goyal,2009) &(Titman and

Wessels,1988). Return on assets is a profitability ratio that provides how much profit a company is able to generate from its assets. Return on assets (ROA) measures how efficient a company's management is in generating profit from their total assets on their balance sheet.

Therefore, Profitability (PRO) = Earnings after tax / total assets. And

The 1ST Hypothesis is Profitability significantly and positively/negatively affects leverage ratio

A tangible Asset is an asset that has a material or physical form anything that can be touched. There are also mixed predictions referring to the relationship between tangibility and debt finance. Hence, Tangibility measured as follows

Tangibility (TAN) = Book value of fixed assets/ total assets. And

The 2nd Hypothesis is Tangibility significantly and positively/negatively affects leverage ratio.

Bank size: - As Banks' determinant capital structure factor, bank size included as explanatory variable. And to achieve the normal distribution and linearity Size of a company measured by natural logarithm of total assets.

Bank size (BZ)= natural logarithm of total asset, Then,

The 3rd Hypothesis is Bank size significantly and positively/negatively affects leverage ratio.

Age of the firm: - Age of the firm is a standard measure of reputation in capital structure models. Hence, the indicator of age of the firm is the number of years of stay in business. Several previous studies have used similar measures (for instance, Melki , 2017).

Age of the firm (AOF) = Year_{rated} – Year_{startup} (Number of years in business).So,

The 4th Hypothesis is Age significantly and positively/negatively affects leverage ratio.

Growth opportunity: - It is measured as the percentage change in total sales; it can also measure as the ratio of capital expenditures to assets.

Growth measured as logarithm of change in total asset and also measured as a percentage change in total sales at annual base but for this study the percentage of change in total sales applied at annual base. Accordingly, expect positive relationship between the growth opportunities and debt levels of the corporate firms.

Growth opportunity (GRO) = Total Sales (t)/ Total Sales (t-1))-1. Therefore,

The 5th Hypothesis is Growth opportunity significantly and positively/negatively affects leverage ratio

Liquidity: - is usually used to measure the liquidity of a firm by using current asset and current liabilities. Hence, the measurement of liquidity is:-

$$\text{Liquidity (LIQ)} = \text{Current asset /Current liability}$$

The 6th Hypothesis is Liquidity significantly and positively/negatively affects leverage ratio

Non-debt tax shields (NDTS):- is defined as the A **tax shield** is a reduction in taxable income by claiming allowable deductions that are not required to actual expense..

Non-debt tax shields (NDTS) = Depreciation & amortization expense * Tax rate.
So,

The 7th Hypothesis is Non-debt tax significantly and positively/negatively affects leverage ratio.

Efficiency ratio: - For banks, the efficiency ratio is non-interest revenue / non-interest expenses. Since a bank's operating expenses are in the denominator and its revenue is in the numerator, a higher efficiency ratio means that a bank is operating better. An efficiency ratio of 50% or over is considered optimal. If the efficiency ratio decreases, it means a bank's expenses are increasing or its revenues are decreasing. Therefore,

The 8th Hypothesis is efficiency ratio significantly and positively/negatively affects leverage ratio.

Inflation: - is the rate at which the general level of prices for goods and services is rising and, consequently, the purchasing power of currency is falling. As inflation rises, every dollar you own buys a smaller percentage of a good or service. When prices rise, and

alternatively when the value of money falls, there is inflation. Accordingly, the measurement of inflation is

Inflation (INF) = Inflation rate of countries at each year. Therefore,

The 9th Hypothesis is Inflation significantly and positively/negatively affects leverage ratio.

Interest rate: - Interest rates primarily influence by affecting a firm's capital structure the cost of debt capital. Companies finance operations with either debt or equity capital. Equity capital refers to money raised from investors, typically shareholders. Debt capital refers to money that is borrowed from a lender. Common types of debt capital include bank loans, personal loans, credit card debt and bonds. Accordingly, the real interest rate measured by

Interest rate (IR) = Interest rate / leverage ratio

The 10th Hypothesis is Interest rate significantly and positively/negatively affects leverage ratio.

Exchange rate :- An exchange rate is the value of a country's currency vs. that of another country or economic zone. Most exchange rates are free-floating and will rise or fall based on supply and demand in the market. Some currencies are not free-floating and have restrictions. Hence, according to based on some related study the exchange rate measured as follows as (Amen, 2017)

Exchange rate (ER) = Currency exchange rate of the countries

The 11th Hypothesis is Exchange rate significantly and positively/negatively affects leverage ratio.

Table 3.1 Data collection instruments for dependent and independent variable

Variables	proxy	Measurement of Variables	Expected result
Dependent variable			
Capital Structure or Leverage	LEV	Total debt/total asset	
Independent variable			
Profitability	PRO	Earnings after tax / total assets.	Significant and Positive/Negative
Tangibility	TAN	Book value of fixed assets/ total assets	Significant and Positive/Negative
Bank size	BZ	natural logarithm of total asset	Significant and Positive/Negative
Age of the firm	AOF	Yearrated – Yearstartup (Number of years in business)	Significant and Positive/Negative
Growth opportunity	GRO	Total Sales (t)/ Total Sales (t-1)-1 x 100	Significant and Positive/Negative
Liquidity	LIQ	Total Current Asset / Total Current Liability	Significant and Positive/Negative
Non-debt tax shields	NDTS	Depreciation & amortization expense xTax rate	Significant and Positive/Negative
Efficiency ratio	EFR	Non-interest income /Non-interest expense x100	Significant and Positive/Negative
Inflation	INF	Inflation rate of countries at each year	Significant and Positive/Negative
Interest rate	IR	Interest rate / leverage ratio	Significant and Positive/Negative
Exchange rate	ER	Currency exchange rate of the countries	Significant and Positive/Negative

CHAPTER FOUR

RESULTS AND ANALYSIS

4.1 Introduction

This chapter discussed in detail the result of the study. The study used panel data of 16 commercial banks. By using Eview 8 explained the collected data reliable for analysis. So that different diagnostics test was made and the results explained in detail. Generally, analysis was done regards to correlation coefficients, model diagnostic test and model selection tests then, descriptive statistics result. Result of regression analysis of this study presented at the last section.

4.2 Descriptive analysis

The study focused in what the determinate of capital structure decision that evidence from 16 commercial banks. Accordingly, the descriptive analysis result for the dependent and independent variables as shown in fig 4.1.

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
LEV	0.85	0.86	0.94	0.70	0.04	127
AOF	11.42	9.00	26.00	0.14	6.94	127
BZ	4.03	4.07	4.95	2.58	0.47	127
EFR	86.90	82.42	207.65	27.94	34.33	127
ER	24.52	23.90	34.90	18.60	5.26	127
GRO	40.84	35.29	420.32	-12.05	40.52	127
IR	5.45	5.37	12.24	1.82	1.58	127
LIQ	0.31	0.28	0.96	0.13	0.13	127
NDTS	16.08	10.51	122.14	0.03	17.59	127
PRO	2.86	2.81	5.13	-5.72	1.08	127
TAN	0.03	0.02	0.07	0.01	0.02	127
INF	0.11	0.11	0.20	0.07	0.05	127

Fig 4.1 Descriptive statistics (Source: - Financial statement of banks, 2013-2020).

Leverage: - The total observation was 127 for 8 years (period). The leverage mean value shown 85% that means 85 % of Assets was financed by debt. The minimum value 70% and maximum value 94% and median 86% of capital structure was Leverage. The

standard deviation 4% shown the variation between banks is very minimal or almost nothing difference. The implication of the higher leverage ratio in banking industry is normal because the nature of the industry has more financed by debt.

The indicator of age of the firm is the number of years of stay in business. Accordingly the mean value 11.42 indicates positive relationship with leverage and maximum 26 and minimum .14 and median 9. The 6.94 standard deviation indicated that variation or dispersion of all observation. Hence the result of mean value 11.42 indicates the age of bank has positive relationship with leverage ratio.

Bank Size: - the median score was 4.07 and higher than mean value 4.03 implies that size has positive relationship with leverage. The maximum 4.95 and minimum 2.58 and standard deviation 0 .47 indicates that the value tend to be the expected value. The bank size increased, accordingly, the bank financed leverage ratio also increased. This implies the bank size is significant factors to determinate of capital structure decisions.

Efficiency rate: - The maximum value was 207.65 and the minimum value was 27.94 then the mean value 86.9 which indicates the average value of total observation was 86.9 and shows positive relation with leverage ratio. The standard deviation 34.33 indicates the amount of variation or dispersion of all observation. The efficiency ratio standard deviation indicates the result is much variance among the banks. The mean value of 86.9 indicates positive relation with leverage ratio but not significant.

Growth opportunity: - is measured as the annual percentage change in total sales. The maximum value was 420.32 and the minimum value was -12.05 then the mean value 40.84. The mean value 40.84 indicates the average growth rate during the 8 years/periods. The mean value compare to median value 35.29 which is slightly not much difference. The standard deviation 40.52 shows the more growth variation has among the banks. The mean value of 40.84 indicated positive relation with leverage ratio and significant for determinate factors.

Liquidity: - is measured as the ratio of current asset to current liability. The mean value was 31% with maximum value was 96% and minimum value was 13%. This variable is slightly to nearest to median value of 28%. The standard deviation 13 % indicates the liquidity has not more variation among the banks. This implies, the current asset section

of these firms was to the minimum will pay 13% of its current obligation and has a maximum capacity of paying its debt by 96%.

Profitability: - the statistics data shows the mean value, the maximum and the minimum value was 2.86, 5.13 and -5.72 respectively. This means the profitability was higher than leverage. The median value was 281% but standard deviation was 108 % which indicates more variation or dispersion of all banks. The profitability was measured by return on asset. The mean value indicates that those Commercial banks under study earned 286 percent net incomes after Taxes on every single birr of their debt.

Tangibility: - is measured as the ratio of net fixed asset to total asset. The above descriptive data shows the mean, the maximum and minimum value was 3%, 7% and 1% respectively. The mean value was almost nearest to median 2%. The mean value of tangibility is 0.03; this means out of the total asset, 3 % are fixed assets. Respectively, whereas the dispersion of tangibility among the sample measured with standard deviation was 2%, which shows that there is no as such big different between private commercial banks in Ethiopia.

Non-debt tax shield (NDTS):- The mean value of 16.08 indicates the banks not used to increase their profits by using non tax expenses. The maximum and minimum value was 122.14 and .03 respectively. The median value was 10.51. The standard deviation was 17.59 which indicate the highest variation or dispersion of banks but positive relation with leverage.

Exchange rate volatility has also impact on bank's asset. The maximum value, the minimum value and mean value was 34.9, 18.60 and 24.52 respectively. The mean value 23.90 it was slightly tended to mean value. The standard deviation 5.26 indicated the impact of exchange rate has not much variation on the all observation. The mean value of 34.9 indicates the average exchange rate throughout the sample year.

Interest rate has affected the leverage ratio. The interest rate change mean value was 5.45, the maximum value was 12.24 and minimum value was 1.82. The mean value has almost the same with median value that was 5.37. The standard deviation 1.58 indicated the impact of interest rate on leverage not much variation on the all commercial banks. The

result indicates the average of interest rate 5.45 has positive and significant impact to decided 1 birr of debt.

Inflation can be measured as a persistent increase in general price levels in an economy over the time. It can be affected the leverage ratio. The mean value, the maximum and the minimum value was .11, .20 and .07 respectively. The median value was the same with mean value of .11, the result shown that on average, inflation increase by 11%. The influence of the inflation has almost the same among the sample banks as of the result of the standard deviation .05.

Over the past two decades, high growth rates in Ethiopia have been accompanied by persistent inflation and other macroeconomic imbalances (IMF 2020). While the country recorded double- digit average growth rates since 2003, average inflation exceeded the 10 percent ceiling set in national development plans during this period (Gebreeyesus, 2016). Between 2003 and 2020, Ethiopia recorded the highest level of average annual inflation (15 percent) among all the countries growing at 5 percent or more (Léonce et al 2021).

4.3 Correlation analysis

The purpose of Correlation analysis used to quantify the degree to which two variables are related. Through the correlation analysis, evaluate correlation coefficient that tells us how much one variable changes when the other one does. Correlation analysis provides you with a linear relationship between two variables. The test of correlation shows correlation between two variables measures the degree of linear association between them (Brooks, 2008).

Correlation analysis calculates the level of change in one variable due to the change in the other. If there is shown to be a strong correlation between two variables or metrics, and one of them is being observed acting in a particular way, then you can conclude that the other one is also being affected in a similar manner

The values of correlation coefficient are always ranged between positive and negative one. A correlation coefficient of negative one indicates that a perfect negative(inverse) association between two variables, while a correlation coefficient of positive one

indicates that a perfect positive(direct) association between the two variables. A correlation coefficient of zero on the other hand indicates that there is no linear relationship between the two variables (Brooks, 2008).

Accordingly, the analysis of the relationship between dependent variable and independent is detailed in fig 4.2 as follows using the correlation matrix

	LEV	AOF	BZ	EFR	ER	GRO	INF	IR	LIQ	NDTS	PRO	TAN
LEV	1.00											
AOF	0.58	1.00										
BZ	0.75	0.78	1.00									
EFR	-0.31	-0.30	-0.46	1.00								
ER	0.19	0.26	0.57	-0.46	1.00							
GRO	-0.19	-0.30	-0.34	0.10	-0.10	1.00						
INF	0.18	0.24	0.55	-0.43	0.97	-0.10	1.00					
IR	0.31	0.36	0.43	-0.65	0.38	-0.02	0.35	1.00				
LIQ	-0.55	-0.50	-0.76	0.49	-0.51	0.27	-0.46	-0.48	1.00			
NDTS	0.46	0.71	0.71	-0.43	0.44	-0.19	0.42	0.51	-0.50	1.00		
PRO	-0.04	-0.08	-0.01	0.61	-0.03	0.18	-0.03	-0.11	-0.10	-0.13	1.00	
TAN	0.18	0.48	0.44	-0.35	0.29	-0.15	0.28	0.20	-0.28	0.51	-0.25	1.00

Fig/ 4.2 Correlation Matrix (Source: - Financial statement of banks, 2013-2020)

Accordingly, the above fig 4.2 shows independent variables' such as efficiency ratio (EFR), growth opportunity (GRO), Liquidity (LIQ) and profitability (PRO) was negative correlated with leverage (LEV). This implies that leverage was increased as the above listed input variables were decreased. To the oppose the leverage ratio was positive correlated with age of asset (AOF), bank size(BZ), exchange rate(ER), inflation(INF), tangibility (TAN), interest rate(IR) and Non-debt tax shield(NDTS).

4.4 Model Diagnostic Test

The aim of model diagnostic test is that to test and contain statistically significant explanatory variable and to test either the classical linear regression model assumptions violated or not, thus if the data fits the basic assumptions of classical linear regression model it is confirmation for the acceptability of the regression result since it enhance the reliability of the regression input and output at hand .Based on these aim the common diagnostic test was done ,accordingly below each of the tests are presented as follows.

4.4.1 Multicollinearity test

The basic aim of testing multicollinearity is that to test the situation where there is either an exact or approximately exact linear relationship among the explanatory variables (Brooks, 2008). Accordingly the variables to be valid the correlation result between two variables shouldn't be greater than 0.8, If the multicollinearity problem occurred the estimates of the sample parameters become inefficient and causes large standard errors, which makes the coefficient values and signs unreliable. It also hides the real impact of each variable on the dependent variable (Brooks, 2008). High degrees of multicollinearity can result in both regression coefficients being inaccurately estimated, and difficulties in separating the influence of the individual variables on the dependent variables. In addition, multiple independent variables with high correlation add no additional information to the model.

When we look at fig 4.2 in this study two variable that was exchange rate and inflation correlation matrix exceeds 0.8 between the independent variables, which was 0.97. Hence, drop one of the collinear variables among the two variables. So the variable inflation (INF) is omitted from the model.

Thus after dropping of one variable, there was no problem of multicollinearity in this study which confirms the reliability of the regression analysis see fig 4.4.1

Correlation	AOF	BZ	EFR	ER	GRO	IR	LIQ	NDTS	PRO	TAN
AOF	1.00									
BZ	0.78	1.00								
EFR	-0.30	-0.46	1.00							
ER	0.26	0.57	-0.46	1.00						
GRO	-0.30	-0.34	0.10	-0.10	1.00					
IR	0.36	0.43	-0.65	0.38	-0.02	1.00				
LIQ	-0.50	-0.76	0.49	-0.51	0.27	-0.48	1.00			
NDTS	0.71	0.71	-0.43	0.44	-0.19	0.51	-0.50	1.00		
PRO	-0.08	-0.01	0.61	-0.03	0.18	-0.11	-0.10	-0.13	1.00	
TAN	0.48	0.44	-0.35	0.29	-0.15	0.20	-0.28	0.51	-0.25	1.00

Fig/table 4.4.1 adjusted correlation after dropping of one variable. (Source: - Financial statement of banks, 2013-2020)

4.4.2 Autocorrelation Test

If the errors are correlated with one another, it would be stated that they are “auto correlated” or that they are serially correlated (Brooks, 2008). The assumption of autocorrelation is that the covariance between the error terms over time is zero. It is assumed that the errors are uncorrelated with one another. To confirm either there is auto correlation or not the Durbin Watson test (DW) rule for autocorrelation was applied in this study and the null hypothesis being there is no autocorrelation. Having 128 observations with 10 independent variables the regression result of DW as shown in fig 4.4.2 below was 1.925677. The DW test result fall in the non-rejection region, thus it indicates there was no evidence of auto correlation problem in this study.

Cross-section fixed (dummy variables)

R-squared	0.858834	Mean dependent var	0.848495
Adjusted R-squared	0.823892	S.D. dependent var	0.040267
S.E. of regression	0.016898	Akaike info criterion	-5.142848
Sum squared resid	0.028840	Schwarz criterion	-4.560574
Log likelihood	352.5709	Hannan-Quinn criter.	-4.906277
F-statistic	24.57887	Durbin-Watson stat	1.925677
Prob(F-statistic)	0.000000		

Fig 4.4.2 Durbin-Watson test result (Source: - Financial statement of banks, 2013-2020)

4.4.3 Tests for Heteroskedasticity

The basic assumption of this test is that the error terms are homoscedastic, in other word assumed that the error terms have constant variance. If the error terms have no constant variance in this case said to be having heteroscedastic problem and the presence of heteroscedasticity makes the standard errors too big or too low and hence any inferences made could be misleading. There are different methods to test heteroscedasticity but the most popular method is the white’s test.

According to (Brook ,2008) if the probability of F-statistics, Observed R-square, and Scaled explained SS of the heteroscedastic white test result is in excess of 5% then there is no heteroscedastic problem. However, if one of these three fails then there is existence of heteroscedastic problem. Accordingly, as shown in fig 4.4.3 below, both the F-statistic and Obs*R-squared Chi-Square versions of the test statistic gave the same conclusion

that there is no evidence for the presence of heteroscedasticity, since the p-values were in excess of 0.05, i.e the P value was .0525 and .0579 respectively.

Heteroskedasticity Test: White

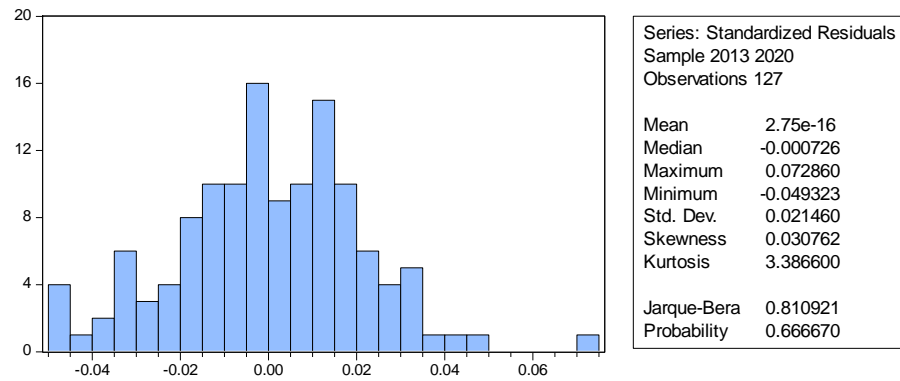
F-statistic	1.897537	Prob. F(10,113)	0.0525
Obs*R-squared	17.82867	Prob. Chi-Square(10)	0.0579
Scaled explained SS	22.22598	Prob. Chi-Square(10)	0.0140

Test Equation:
 Dependent Variable: RESID^2
 Method: Least Squares
 Date: 04/25/22 Time: 19:09
 Sample: 1 128
 Included observations: 124

Fig4.4.3 Heteroskedasticity Test: White result (Source: - Financial statement of banks, 2013-2020)

4.4.4 Normality Test

The assumption of the normality test is the mean of the residuals is zero. According to (Brook, 2008) the normality of the data can be checked with the popular Jarque-Bera test statistic and its corresponding kurtosis. Kurtosis measure the skewness of the data at hand, the data distribution either it can be skewed to the left or to the right kurtosis with value 3 highly preferred and the bell shaped is the standard .The null hypotheses is that with 5% significant level we failed to reject the null hypotheses H_0 where there is no problem of normality .In short if the P-value of the test greater than 5% we do not reject the null hypotheses and we said the data is normally distributed. According to table 4.4.4 below the P value was of 0.67 it implies that the p value for the Jarque-Bera test for the model is greater than 5% which indicates that the errors are normally distributed. In addition, the kurtosis was 3.39 it indicates close to 3 which is also acceptable and confirm the data was normally distributed.



Fig/Table 4.4.4 Normality distribution graph (Source: - Financial statement of banks, 2013-2020)

4.5 Model Specification Test

These are fixed effects models and random effects models. Both approach outcomes has similarity with slight deference. To run regression using panel data according to (Brooks, 2008) there are broadly two classes of panel estimator approaches available, that can be employed in financial research. If T (the number of time series data) is large and N (the number of cross-sectional units) is small, there is likely to be little difference in the values of the parameters estimated by fixed effect model and random effect model (Gujarati, 2009).

In order to select the appropriate model which provide consistent estimates for this study, Hausman test was employed.

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	29.848008	10	0.0009

Fig. 4.4. Hausman Test (Source: - Financial statement of banks, 2013-2020)

According to Hausman test, the P value less than 5%. Hence, random effect is rejected and fixed effect model is implemented for this study.

The fixed-effects model controls for all time-invariant differences between the individuals, so the estimated coefficients of the fixed-effects models can't be biased because of omitted time-invariant characteristics. Thus the goal of fixed effect model is to eliminate the unobservable factors, moreover fixed effect model widely thought to be a more convincing tool for estimation of ceteris paribus (other factor constant) effects and if the cross entity observation is less than the time serious observation (Brooks ,2008). Therefore the fixed effect model is more appropriate for this study.

4.6 Result of regression analysis

The final section of this chapter presented the empirical econometric regression result regarding to the subject of this study determinants of capital structure decision factors on leverage ratio of Commercial banks of Ethiopia. Thus fig 4.5 below report the regression results between the dependent variable Leverage (LEV) and the independent variables; profitability, liquidity, growth opportunity, age of firm, bank size, efficiency rate, exchange rate, net debt tax shield, interest rate and tangibility as follows.

This study used panel data models where the Hausman test result shown in fig 4.4 the fixed effects were found to be more appropriate for the model. Thus, the relationship between leverage and explanatory variables were examined by the fixed effects model in this study.

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

$$\text{Levit} = \alpha + \beta_1 \text{PROit} + \beta_2 \text{TANit} + \beta_3 \text{BZit} + \beta_4 \text{AOFit} + \beta_5 \text{GROit} + \beta_6 \text{LIQit} + \beta_7 \text{NDTSit} + \beta_8 \text{EFRit} + \beta_9 \text{IRit} + \beta_{10} \text{ERit} + \text{uit}$$

Dependent Variable: LEV

Method: Panel Least Squares
Date: 04/25/22 Time: 22:00
Sample: 2013 2020
Periods included: 8
Cross-sections included: 16
Total panel (unbalanced) observations: 127

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.701008	0.061582	11.38325	0.0000
PRO	0.003395	0.003379	1.004719	0.3174
GRO	9.84E-05	4.57E-05	2.153639	0.0336
AOF	-0.001279	0.001061	-1.205284	0.2309
BZ	0.057923	0.018123	3.196047	0.0019
TAN	-0.006866	0.173436	-0.039586	0.9685
NDTS	-9.12E-05	0.000178	-0.512097	0.6097
LIQ	-0.025081	0.025460	-0.985098	0.3269
IR	-0.009728	0.003211	-3.029830	0.0031
EFR	-0.000152	0.000153	-0.993000	0.3231
ER	-0.000387	0.000940	-0.412026	0.6812

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.858834	Mean dependent var	0.848495
Adjusted R-squared	0.823892	S.D. dependent var	0.040267
S.E. of regression	0.016898	Akaike info criterion	-5.142848
Sum squared resid	0.028840	Schwarz criterion	-4.560574
Log likelihood	352.5709	Hannan-Quinn criter.	-4.906277
F-statistic	24.57887	Durbin-Watson stat	1.925677
Prob(F-statistic)	0.000000		

Fig. 4.5. Fixed effect regression output (Source: - Financial statement of banks, 2013-2020)

4.6.1 Analysis on the regression out put

According to table/ fig 4.5 regression output evaluated the result and/or value as follows:-

R-Squared value: the R-squared value was 86%, it implies that the proportion of the total sample variation in the dependent variable that is explained by the independent variable was 86% and the remaining 16% was not explained by the model. The decision rule was that the closer the R^2 is to 1 or 100% the better the goodness of fit. The R^2 lies between zero and one. A value of R^2 that is nearly equal to zero indicates a poor fit of the OLS line (Wooldridge, 2009). Thus the conclusion is the R –squared value was close to 100% i.e was 86% thus have better goodness of fit.

Table /fig 4.5 Regression result using panel fixed effect

Adjusted R-Squared value: The adjusted R-squared as indicated in table was 82 % it measures the goodness of fit after penalizes additional explanatory variables by using a degrees of freedom adjustment in estimating the error variance. This value indicates that collectively the change in firm specific factors explain 82% of the dependent variable leverage. Hence it can be said the variables firm specific factors was a good explanatory variable to determine the leverage ratio of and the remaining 18% was determined by other factors not included in this model and still it confirm the goodness of fit.

Prob(F-Statistic value): The joint F statistical probability of this study was 0.0000 and the statistic tests criteria the null hypothesis that all the regression coefficients are equal to zero. The probability of F-stat 0.0000 confirm that overall or jointly the model was reliable and valid and statistically also significant (Wooldridge, 2009).

P-Value: The decision rule is if the P-value is less than or equal to 0.01 (1%) we reject the null and accept the alternative hypothesis at 1% level of significance. If the p-value is less than or equal to 0.05 (5%), we reject the null and accept the alternative hypothesis at 5% level of significance and if the p-value is less than or equal to 0.10 (10%), we reject the null hypothesis and accept the alternative hypothesis at 10% level of significance (Wooldridge, 2009).

Accordingly, the P value of independent variables, growth opportunity (GRO) with P value 0.0336, Bank Size (SZE)with P value of 0.0019 and Interest rate (IR) with p value 0.0031 respectively was significant at 5% significant level and there was no variables with P value was significant at 10% significant level but the rest variables profitability (PRO), age of firm(AOF), efficiency rate (EFR), tangibility (TAN) exchange rate(ER),

liquidity(LIQ) and net debt tax shield (NDT) was insignificant with p value 0.3174, 0.2309,0.3231, 0.9685,0.6812, 0.3269 and 0.6097 respectively.

Durbin-Watson (DW) Statistic: It assists in specifying the right combination of the explanatory variables (Gujarati, 2009). It also tests to identify serial correlation problem (Wooldridge, 2009).

Based on the test in section 4.3.2 of this chapter the DW test result was 1.92 and confirm there was no auto correlation problem thus it can be concluded that the explanatory variables combination was right for this study.

4.6.2 Analysis on the result of hypothesis testing

This part focuses mainly on the results of the regression analysis for the selected input variables for this study on leverage ratio in light of the hypotheses developed in chapter three sections 3.8.2 the research objectives and research question developed in chapter one section 1.3 and the theory summarized in chapter two of the literature review. One of the research question and hypothesis as follows what are bank-specific factors affecting capital structure decisions in banking industries?

Hypothesis 1:- Profitability significantly and positively/negatively affects leverage ratio.

Financing choices also have an indirect effect on the costs of debt and equity because they change the risk and required returns of debt and equity. As indicating in the regression analysis result the profitability has positive and insignificant relationship with leverage ratio. The Coefficient has positive p value indicates 0.3174 which means insignificant. When profit after interest and tax increase by 1%, leverage ratio increase by 0.34 percent, other factors remain constant. Which means profit of Banks has positively affects their leverage ratio but insignificant.

Theoretically the result of the regression confirm the trade-off theory, agency costs, taxes, and bankruptcy costs push more profitable firms toward higher book leverage. First expected bankruptcy costs decline when profitability increases. Second, the deductibility of corporate interest payments induces more profitable firms to finance with debt.

Other empirical findings on previous studies like (Yohannes, 2017); (Muhammad et al., 2009) also were found a Positive relationship between leverage ratio and profitability and in line with the findings of this study.

The 2nd Hypothesis is Tangibility significantly and positively/negatively affects leverage ratio.

The result of the regression model fig 4.5 indicated that the relationship between tangibility (TAN) and leverage was found to be negative and statistically insignificant (P-value is equal to 0.9685). The result also implies that every one percent change (increase or decrease) in the banks tangibility had change of 0.69 percent on the leverage ratio in opposite direction at the other thing constant.

According to the agency cost theory, the negative relationship between tangibility and debt finance is caused by the close monitoring function of bond holders. The costs incurred from this agency relationship are normally higher for firms with fewer tangible assets. Therefore, it is a voluntary decision by firms with fewer tangible assets to choose higher debt levels, thus controlling the consumption of perquisites Ting, (2014).

Caglayan and Sak (2010), Ayanda et al. (2013) and Yohannes (2017) stated negative relationship between tangibility and leverage. In contrary some results of the study had shown tangibility is both positive and significant variable to leverage (Amen Sewunet, 2017).

The 3rd Hypothesis is Bank size significantly and positively/negatively affects leverage ratio.

The result of fig 4.5 shown the coefficient of size (BZ) was 0.059 and positively related with leverage ratio same as expected and statically significant at 5% significant level and in line with the hypothesis three in that there is positive and significant effect on leverage because the P value of the coefficient was 0.0019. The value of the coefficient 0.059 implies that a 1% increase in size will result 0.059 percent increase in leverage ratio and statistically significant at 5% level. This result is consistent with trade of theory in that larger firm have lower business risk thus will be more stable than small firms so they have high leverage.

Saddam (2014) and Mohammed (2014) from the previous study result had almost the same result and supported the result.

4th Hypothesis is Age significantly and positively/negatively affects leverage ratio.

The result as of fig 4 the coefficient of AOF was -0.001279 that implies negatively related and insignificant because of p value was 0.2309. Age of the firm is a standard measure of reputation in capital structure models. Hence, the indicator of age of the firm is the number of years of stay in business. According to the regression result the age of the bank is not significant to capital structure decision.

Previous empirical evidences confirm AOF not significant factors to affect the capital structure (Amanuel. 2011). But in contrary study of Ahmed Melki (2017),Saddam (2014) and Bayeh (2011) Age were found to be significant factors that affect capital structure decision.

5th Hypothesis is Growth opportunity significantly and positively/negatively affects leverage ratio

Growth opportunity (GRO) is measured as the percentage change in total sales. Accordingly, expect positive relationship between the growth opportunities and leverage ratio.

The regression result of fig 4.5 shown the coefficient GRO of was 9.84E-05 and positively related with leverage ratio same as expected and statically significant at 5% significant level and in line with the hypothesis in that there is positive and significant effect on leverage because the P value of the coefficient was 0.0336.

According to the pecking order theory of Myers and Majluf (1984) predicts that leverage and positively related. For growing firms, internal funds may be insufficient to finance their positive investment opportunity and, hence, they are likely to be in need of external funds. If external funds are required, firms will prefer debt to equity because of lower information costs associated with debt issues. This results in significant and positive relationship between leverage and growth opportunities.

Some empirical evidence shown their regression result implied that GRO was significant and positive relationship with leverage Songul, (2015) Amidu (2007) Ayanda et al. (2013) Yohannes Estifanos (2017) Bayeh (2011).

6th Hypothesis is Liquidity significantly and positively/negatively affects leverage ratio

The fixed effect of regression result (see fig 4.5) shown that Liquidity (LIQ) had negatively relationship with leverage ratio and statistically insignificant (P value= 0.3269). It implies that when liquidity of the banks increased by 2.5%, leverage ratio decrease by 2.5 percent, other factors remain constant. The p value confirms also liquidity has not high impact on determining capital structure.

The peaking order theory appropriate capital structure theories rational for this result. It assumes firms first utilize its own internal resource that reserve from retained earnings before acquiring external sources.

Other empirical findings on previous studies like Amen Sewunet (2017), Yohannes Estifanos (2017) Saddam (2014) also found that the firm with more liquid, will tends to carry less debt because they prefer to raise equity from internal source rather than debt from external source.

7th Hypothesis is efficiency ratio significantly and positively/negatively affects leverage ratio.

Efficiency ratio is measured non-interest revenue / non-interest expenses. Accordingly as indicated in table/fig 4.5 the coefficient result of EFR was negative (-0.000152) and P value was 0.3231. This result implies that there is a negative relationship between the variable EFR and leverage ratio. When efficiency ratio of the banks was increased by 1 %, leverage ratio was decrease by .02 percent, other factors remain constant. But, it wasn't statically significant in determination of capital structure. Muhammad et al. (2009) their study revealed that financial liberalization and efficiency of financial markets had a significant positive relationship with leverage.

Theoretically the peaking order theory is in line with the output of variables efficiency ratio (EFR) and leverage, according to this theory high profitable firms use their own

resource from their own equity before acquire the external financing or debt because firms get advantage of information asymmetry, thus the low-cost source of financing is equity than debt.

Industrial factors

8th Hypothesis is Non-debt tax significantly and positively/negatively affects leverage ratio.

Non debt tax shield (NDT): As indicated in table/fig 4.5 the coefficient result of NDT was negative and P value was 0.6097 this result implies that there is a negative relationship between the variable NDT and leverage ratio. However, it wasn't statically significant in determination of capital structure.

The higher the taxes firms pay, the higher the value of debt tax shields firms can gain this was suggested by (Myers, 1984). The trade-off theory predicts higher leverage when a firm is forced to pay higher taxes on its earnings. Furthermore, non-debt tax shields such as accounting depreciation, depletion allowances, and investment tax credits have been found to have a negative influence on leverage because they act as substitutes for the benefit of debt financing coming from interest tax shields (De Angelo & Masulis, 1980). Hence the appropriate theory for non-debt tax shield is the tradeoff theory.

Other researcher's findings that found a firm with a higher non debt tax shield has a lower amount of leverage Tesfaye and Minga (2012).

Macroeconomic factors

Hypothesis 1: Interest rate significantly and positively/negatively affects leverage ratio.

The result of fixed effect model in fig 4.5 indicated interest rate (IR) was negative relation with leverage ratio. That means the coefficient of IR was negative 0.009728 and P value was 0.0031, and statistically significant at 5% statistical level which confirm interest has high impact on determining leverage ratio. This implies that every one percent change (increase or decrease) in interest rate keeping the other thing constant has a resultant change of 1 % on the leverage in the opposite direction. Hence, interest rate significantly and negatively affects leverage ratio.

Finding of the study on lending interest rate is consistent with the pecking order theory. Because the result of the study implies that when the lending interest rate in Ethiopian financial sector increases, private commercial banks prefer to finance their banks through equity rather than debt.

Other empirical results;-negative impact of interest rate on leverage matches with results in previous researches by Dincergok and Yalciner (2011) & Ahmed Melki (2017). In the result has opposite output by (Ahmed Melki, 2017) and (Saddam, 2014).

Hypothesis 2 is Exchange rate significantly and positively/negatively affects leverage ratio

The result of fixed effect model in fig 4.5 indicated coefficient of ER was negative 0.000387 and P value was 0.6812, and statistically not significant which confirm exchange rate (ER) has not impact on determining leverage ratio/ capital structure decision. This implies one percent change of exchange rate keeping the other thing constant has a resultant change of .038 % on the leverage in the opposite direction. the pecking order theory is more appropriate.

The result from previous study of Aida M.ZeinPer Angstrom (2016) and Amen Sewunet (2017) had shown a negative relationship with debt.

4.7 Summary of findings

Firm specific/ Industrial Internal factors	Hypothesis	The study Result /with Leverage/	
Profitability	Significant and +/-	Positive and insignificant	trade-off theory
Tangibility	Significant and +/-	negative and insignificant	agency cost theory
Bank size	Significant and +/-	positive and significant	trade-off theory
Age of the firm	Significant and +/-	negative and insignificant	tradeoff theory
Growth opportunity	Significant and +/-	positive and significant	pecking order theory
Liquidity	Significant and +/-	negative and insignificant	Peaking order theory
Non-debt tax shields	Significant and +/-	negative and insignificant	tradeoff theory
Efficiency ratio	Significant and +/-	negative and insignificant	pecking order theory

Firm specific/Industrial Internal factors	Hypothesis	The study Result	
Interest rate	Significant and +/-	negative and significant	pecking order theory
Exchange rate	Significant and +/-	negative and insignificant	pecking order theory

Fig. 4.6. Summary of the study result (Source:- regression output and own analysis)

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

This chapter presented the results of the study and discussions of the results with support of empirical data. Accordingly, the first section presented the conclusion part that presents a brief summary about the overview of the thesis and the main finding of the study followed; then finally the recommendation part and the direction for future researches was highlighted.

5.1 Conclusion

This study was conducted to find answer and test for the formulated hypothesis focusing on internal and external factors determine the capital structure of commercial banks of Ethiopia. Accordingly, to meet the research objectives eight firm specific and industrial internal factors which are Profitability, Tangibility, Bank Size, Age of firm, growth opportunity, Liquidity, Efficiency ratio, Non-debt tax shields and two external factors which are interest rate and exchange rate were selected.

Then to carry out the study the research design and methodology of the study was selected and the data eight years data for purpose of including the recent formed banks were extracted from audited financial statement of 16 commercial banks' in Ethiopia with the period 2013-2020. Finally, the extracted data was analyzed and tested using the framework of panel data regression model assumption. To analyze and respond to the proposed research question descriptive statistics, diagnostic tests, model selection, regression result analysis and test of the hypothesis have been done using Eview 8.

With the objectives of examining the factors determining the capital structure of Banks in Ethiopia, the researcher made detail analysis and attempted to provide answers for the research questions and test the hypothesis. Then the result of findings that on some of the determinants that most affect the capital structure of banks. Thus the study adds value to the literatures by empirically linking the internal determinant factors with capital structure. In conclusion based on the current empirical findings Bank size, Growth

opportunity from internal factors and Interest rate from external factors were determining capital structure of commercial banks of Ethiopia.

- Bank size has been important input factor on the decision of leverage in that Banks having large size relatively were used more debt .The result shown bank size has positive and significant effect on leverage .Same as the current result of this study the previous empirical result by other researcher also a firm size has significant impact on leverage . The most applicable theory regarding to the variable bank size and leverage are the tradeoff theory. The conclusion is therefore bank size is main important factor in determining capital structure of banks.
- Growth opportunity has been again one of important internal factor on the decision of leverage. The result shown it has positive and significant effect on leverage. The value of the prop. 0.0336 implies that statistically significant at 5% level. According to the pecking order theory for growing firms, internal funds may be insufficient to finance their positive investment opportunity and, hence, they are likely to be in need of external funds or debt. Therefore, Growth opportunity another is main important factor in determining capital structure of banks.
- Interest rate is one of external factor for determinate of capital structure decision. Accordingly, the interest rate has been high impact on determining leverage. It has significantly and negatively affects leverage. The result of the study implies that when the lending interest rate in Ethiopian financial sector increases, private commercial banks prefer to finance their banks through equity rather than debt. The above conclusion supported with the pecking order theory.

5.2 Recommendation

Overall this research provided a more conclusion on the determinants of specific internal and external factors on the capital structure decision of commercial banks in Ethiopia and most findings in literature and the findings of this study also in line. Accordingly the study suggests the following recommendation.

- Analysis result indicates that the bank size and the growth opportunity have positive and significant affect on leverage in banking industry among the specific internal factors. Hence, the investors, the shareholders or the managers (decision makers) should be aware and focus the bank size and growth opportunity in order to decide the capital structure.
- A number of empirical studies have been conducted to examine that several internal factors to determinate Capital structures of commercial banks of Ethiopia. However, no such much external factors have been conducted in Ethiopia. Thus, the analysis result indicated the Interest rate factor has negative and significant affecting their leverage ratio. Then the decision makers should be focused the interest rate for decision of capital structure.
- Theory applicable in this study was the peaking order theory, trade of theory and agency cost theory. But, the banks recommended using the peaking order theory as a guide streak while determining the capital structure. Sometimes tradeoff theory also suggested using for decision.

This study focused only eight specific and two macroeconomic (external factors) determinants of capital structure of banking industry in Ethiopia. And the research approach was only quantitative due to time limitation. Hence, the researcher recommended the future research shall be using both qualitative and quantitative approaches (mixed methods). Because it might be to get support the quantitative findings and to gain additional insight into the factors that may affect the capital structure of banks in Ethiopia.

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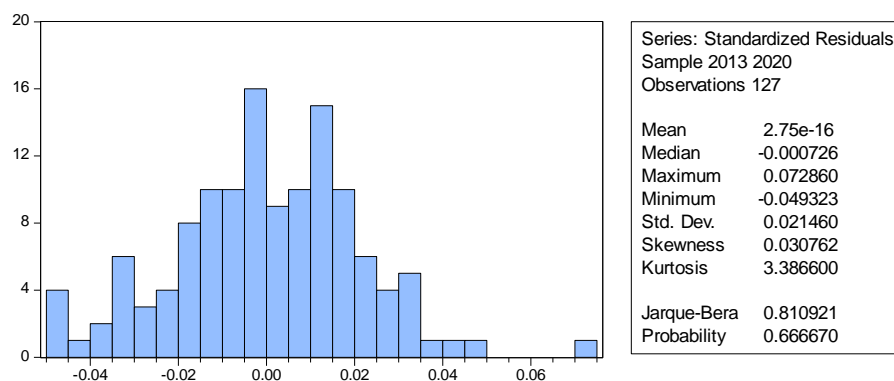
APPENDICES

APPENDIX–I TESTS FOR THE MULTI-COLLINARITY.

	AOF	BZ	EFR	ER	GRO	INF	IR	LIQ	NDTS	PRO	TAN
AOF	1.00										
BZ	0.78	1.00									
EFR	-0.30	-0.46	1.00								
ER	0.26	0.57	-0.46	1.00							
GRO	-0.30	-0.34	0.10	-0.10	1.00						
INF	0.24	0.55	-0.43	0.97	-0.10	1.00					
IR	0.36	0.43	-0.65	0.38	-0.02	0.35	1.00				
LIQ	-0.50	-0.76	0.49	-0.51	0.27	-0.46	-0.48	1.00			
NDTS	0.71	0.71	-0.43	0.44	-0.19	0.42	0.51	-0.50	1.00		
PRO	-0.08	-0.01	0.61	-0.03	0.18	-0.03	-0.11	-0.10	-0.13	1.00	
TAN	0.48	0.44	-0.35	0.29	-0.15	0.28	0.20	-0.28	0.51	-0.25	1.00

Source: Own computation from financial statement of banks, 2013-2020 data using Eviews8

APPENDIX–2 NORMALITY DISTRIBUTION GRAPH



Source: - Own computation from financial statement of banks, 2013-2020 data using Eviews 8

APPENDIX–3 TEST FOR HETEROSKEDASTICITY TEST: WHITE

Heteroskedasticity Test: White

F-statistic	1.897537	Prob. F(10,113)	0.0525
Obs*R-squared	17.82867	Prob. Chi-Square(10)	0.0579
Scaled explained SS	22.22598	Prob. Chi-Square(10)	0.0140

Test Equation:
 Dependent Variable: RESID^2
 Method: Least Squares
 Date: 04/25/22 Time: 19:09
 Sample: 1 128
 Included observations: 124

Source: - Own computation from financial statement of banks, 2013-2020 data using Eviews 8

APPENDIX-4 REGRESSION RESULTS (OUTPUTS)

Dependent Variable: LEV
 Method: Panel Least Squares
 Date: 05/31/22 Time: 02:38
 Sample: 2013 2020
 Periods included: 8
 Cross-sections included: 16
 Total panel (unbalanced) observations: 127

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.701008	0.061582	11.38325	0.0000
AOF	-0.001279	0.001061	-1.205284	0.2309
BZ	0.057923	0.018123	3.196047	0.0019
EFR	-0.000152	0.000153	-0.993000	0.3231
ER	-0.000387	0.000940	-0.412026	0.6812
GRO	9.84E-05	4.57E-05	2.153639	0.0336
IR	-0.009728	0.003211	-3.029830	0.0031
LIQ	-0.025081	0.025460	-0.985098	0.3269
NDTS	-9.12E-05	0.000178	-0.512097	0.6097
PRO	0.003395	0.003379	1.004719	0.3174
TAN	-0.006866	0.173436	-0.039586	0.9685

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.858834	Mean dependent var	0.848495
Adjusted R-squared	0.823892	S.D. dependent var	0.040267
S.E. of regression	0.016898	Akaike info criterion	-5.142848
Sum squared resid	0.028840	Schwarz criterion	-4.560574
Log likelihood	352.5709	Hannan-Quinn criter.	-4.906277
F-statistic	24.57887	Durbin-Watson stat	1.925677
Prob(F-statistic)	0.000000		

Source: - Own computation from financial statement of banks, 2013-2020 data using Eviews 8

APPENDIX 5: SUMMERY OF DATA USED FOR THE STUDY

BANK	YEAR	LEV	AOF	BZ	EFR	ER	GRO	INF	IR	LIQ	NDTS	PRO	TAN
DB	2013	0.8964	18.00	4.30	154.88	18.60	5.30	0.07	3.51	0.38	19.30	3.26	0.02
DB	2014	0.8817	19.00	4.34	163.48	19.60	18.06	0.07	3.58	0.37	26.17	3.42	0.03
DB	2015	0.8819	20.00	4.39	124.53	20.60	17.26	0.10	3.95	0.28	28.59	3.12	0.03
DB	2016	0.8825	21.00	4.46	116.30	21.70	8.67	0.07	3.72	0.30	36.91	2.73	0.03
DB	2017	0.8847	22.00	4.54	88.81	23.90	24.95	0.11	4.03	0.19	32.49	2.39	0.02
DB	2018	0.8709	23.00	4.66	63.99	27.40	29.74	0.14	5.08	0.20	37.98	2.32	0.06
DB	2019	0.8782	24.00	4.75	49.04	29.10	20.86	0.16	5.05	0.14	51.65	2.00	0.05
DB	2020	0.8782	25.00	4.83	46.73	34.90	34.56	0.20	6.01	0.16	61.26	2.47	0.06
AIB	2013	0.9431	19.00	4.17	126.25	18.60	34.02	0.07	4.37	0.28	14.37	3.79	0.03
AIB	2014	0.8703	20.00	4.30	134.85	19.60	29.05	0.07	4.02	0.34	19.07	3.54	0.03
AIB	2015	0.8666	21.00	4.38	104.82	20.60	19.77	0.10	4.32	0.21	26.64	2.94	0.04
AIB	2016	0.8671	22.00	4.47	85.34	21.70	22.73	0.07	5.05	0.25	42.80	2.78	0.04
AIB	2017	0.8854	23.00	4.62	78.46	23.90	33.28	0.11	5.22	0.23	58.32	2.80	0.03
AIB	2018	0.8825	24.00	4.74	61.24	27.40	43.60	0.14	6.39	0.27	52.34	3.07	0.04
AIB	2019	0.8709	25.00	4.87	79.85	29.10	49.06	0.16	6.19	0.19	53.36	3.76	0.03
AIB	2020	0.8659	26.00	4.95	59.09	34.90	26.72	0.20	7.00	0.20	60.43	3.17	0.03
BOA	2013	0.906	17.00	4.00	110.28	18.60	19.56	0.07	4.08	0.28	6.10	2.90	0.03
BOA	2014	0.8644	18.00	4.05	80.71	19.60	17.16	0.07	4.90	0.30	10.97	2.55	0.03
BOA	2015	0.8675	19.00	4.14	76.49	20.60	19.18	0.10	4.90	0.56	13.37	2.34	0.06
BOA	2016	0.8738	20.00	4.23	75.10	21.70	35.29	0.07	5.29	0.23	17.06	2.36	0.06
BOA	2017	0.8853	21.00	4.40	74.89	23.90	46.48	0.11	5.11	0.17	23.34	2.71	0.05
BOA	2018	0.8673	22.00	4.50	38.06	27.40	36.85	0.14	6.66	0.17	21.80	1.96	0.06
BOA	2019	0.874	23.00	4.59	44.64	29.10	30.99	0.16	6.25	0.14	30.95	2.18	0.05
BOA	2020	0.9002	24.00	4.76	29.86	34.90	32.49	0.20	6.75	0.13	38.32	1.78	0.07
WB	2013	0.8239	16.00	4.02	112.23	18.60	11.88	0.07	5.09	0.37	10.51	3.66	0.03
WB	2014	0.814	17.00	4.06	96.29	19.60	12.37	0.07	5.12	0.36	12.95	2.91	0.05
WB	2015	0.8239	18.00	4.14	81.14	20.60	24.09	0.10	5.22	0.25	16.69	2.79	0.05
WB	2016	0.8267	19.00	4.21	71.47	21.70	15.59	0.07	5.37	0.28	17.83	2.51	0.05
WB	2017	0.8398	20.00	4.32	82.42	23.90	39.82	0.11	5.52	0.28	18.16	2.87	0.05
WB	2018	0.8603	21.00	4.44	75.61	27.40	44.05	0.14	6.30	0.20	26.41	3.28	0.05
WB	2019	0.8558	22.00	4.47	47.70	29.10	3.93	0.16	6.34	0.18	31.36	2.17	0.05
WB	2020	0.8662	22.00	4.58	55.65	34.90	37.64	0.20	6.54	0.21	39.36	2.45	0.04
UB	2013	0.8797	15.00	4.00	106.98	18.60	8.96	0.07	7.58	0.26	8.66	3.00	0.01
UB	2014	0.8674	16.00	4.07	80.89	19.60	14.95	0.07	8.11	0.36	14.88	2.54	0.01
UB	2015	0.8826	17.00	4.16	65.42	20.60	28.07	0.10	8.22	0.23	20.19	2.14	0.02
UB	2016	0.88	18.00	4.24	62.24	21.70	25.48	0.07	8.91	0.22	19.66	2.14	0.03
UB	2017	0.8851	19.00	4.34	52.04	23.90	20.13	0.11	8.70	0.19	18.05	1.95	0.03
UB	2018	0.8946	20.00	4.45	53.09	27.40	42.67	0.14	10.26	0.20	20.62	2.30	0.04
UB	2019	0.892	21.00	4.55	39.03	29.10	29.05	0.16	10.64	0.13	72.25	2.36	0.04
UB	2020	0.8755	22.00	4.63	28.19	34.90	31.81	0.20	12.24	0.15	122.14	2.27	0.05
CBO	2013	0.8935	8.00	3.82	146.31	18.60	77.82	0.07	3.79	0.77	6.23	3.70	0.01
CBO	2014	0.8516	9.00	3.87	150.21	19.60	63.15	0.07	6.66	0.34	8.79	4.94	0.02
CBO	2015	0.8769	10.00	4.06	86.30	20.60	39.03	0.10	6.54	0.33	10.29	3.32	0.02

CBO	2016	0.8858	11.00	4.03	31.34	21.70	-12.05	0.07	7.22	0.25	15.12	0.35	0.02
CBO	2017	0.9144	12.00	4.25	43.05	23.90	41.45	0.11	5.84	0.24	19.86	1.46	0.02
CBO	2018	0.9205	13.00	4.48	50.54	27.40	64.42	0.14	5.90	0.31	17.69	1.84	0.02
CBO	2019	0.9213	14.00	4.62	47.09	29.10	48.06	0.16	5.76	0.26	22.42	1.84	0.02
CBO	2020	0.9026	15.00	4.72	57.02	34.90	54.62	0.20	5.98	0.15	28.23	2.51	0.02
NIB	2013	0.8178	8.00	3.96	102.22	18.60	12.08	0.07	5.49	0.34	6.06	3.44	0.01
NIB	2014	0.8172	9.00	4.03	90.73	19.60	22.05	0.07	4.68	0.24	14.16	3.30	0.02
NIB	2015	0.8358	10.00	4.12	68.60	20.60	16.35	0.10	5.39	0.18	13.68	2.81	0.02
NIB	2016	0.8409	11.00	4.20	53.03	21.70	18.39	0.07	5.91	0.24	16.08	2.68	0.02
NIB	2017	0.8595	12.00	4.32	60.92	23.90	36.17	0.11	5.83	0.20	17.67	3.70	0.02
NIB	2018	0.8733	13.00	4.43	42.75	27.40	27.13	0.14	6.03	0.18	17.86	2.16	0.07
NIB	2019	0.8692	0.14	4.53	40.02	29.10	34.64	0.16	6.22	0.14	23.85	2.39	0.07
NIB	2020	0.8637	0.16	4.63	42.03	34.90	36.17	0.20	6.66	0.16	20.53	2.74	0.07
LIB	2013	0.8158	7.00	3.47	141.46	18.60	35.26	0.07	5.36	0.47	1.20	4.12	0.01
LIB	2014	0.8263	8.00	3.56	94.34	19.60	15.15	0.07	5.77	0.42	2.01	2.95	0.01
LIB	2015	0.8597	9.00	3.77	101.67	20.60	86.80	0.10	4.79	0.34	2.84	3.18	0.01
LIB	2016	0.8682	10.00	3.91	83.37	21.70	40.04	0.07	5.74	0.29	4.17	2.81	0.01
LIB	2017	0.868	11.00	4.04	61.87	23.90	16.53	0.11	6.41	0.30	5.60	2.81	0.01
LIB	2018	0.8737	12.00	4.16	55.46	27.40	44.54	0.14	6.97	0.26	6.78	3.09	0.01
LIB	2019	0.8745	13.00	4.31	59.78	29.10	47.18	0.16	6.57	0.22	8.76	3.11	0.01
LIB	2020	0.8905	14.00	4.50	32.37	34.90	40.23	0.20	7.04	0.26	13.67	2.47	0.03
BrlB	2013	0.8264	3.00	3.34	110.16	18.60	30.21	0.07	3.14	0.46	2.56	2.13	0.01
BrlB	2014	0.8032	4.00	3.45	74.35	19.60	78.52	0.07	6.04	0.49	2.60	1.80	0.01
BrlB	2015	0.8258	5.00	3.62	100.26	20.60	46.67	0.10	4.79	0.41	4.21	2.97	0.01
BrlB	2016	0.8527	6.00	3.86	109.01	21.70	110.94	0.07	5.81	0.29	5.02	4.68	0.01
BrlB	2017	0.8203	7.00	4.02	102.35	23.90	48.14	0.11	5.86	0.32	5.72	3.73	0.02
BrlB	2018	0.8435	8.00	4.15	60.46	27.40	32.88	0.14	6.61	0.25	8.82	2.67	0.02
BrlB	2019	0.8542	9.00	4.28	65.40	29.10	42.06	0.16	6.08	0.20	10.20	2.76	0.02
BrlB	2020	0.8396	10.00	4.33	59.27	34.90	29.57	0.20	7.44	0.17	54.05	2.73	0.04
ZB	2013	0.8483	4.00	3.51	141.07	18.60	51.92	0.07	1.82	0.45	4.19	3.34	0.02
ZB	2014	0.8326	5.00	3.59	207.65	19.60	12.39	0.07	3.19	0.49	3.89	5.13	0.02
ZB	2015	0.8431	6.00	3.69	145.31	20.60	10.26	0.10	3.17	0.30	7.40	3.48	0.01
ZB	2016	0.8641	7.00	3.87	148.43	21.70	40.12	0.07	2.68	0.40	8.34	3.31	0.01
ZB	2017	0.864	8.00	3.99	159.55	23.90	37.37	0.11	2.44	0.42	7.18	4.18	0.05
ZB	2018	0.8636	9.00	4.09	120.37	27.40	17.54	0.14	3.04	0.40	9.02	2.45	0.04
ZB	2019	0.8412	10.00	4.17	136.56	29.10	39.38	0.16	3.88	0.22	10.73	3.57	0.05
ZB	2020	0.8312	11.00	4.27	123.42	34.90	35.53	0.20	5.80	0.30	14.85	4.45	0.05
OIB	2013	0.86	4.00	3.59	77.25	18.60	45.41	0.07	4.37	0.39	7.23	2.00	0.03
OIB	2014	0.8783	5.00	3.79	91.73	19.60	63.57	0.07	5.73	0.37	8.58	3.06	0.02
OIB	2015	0.8134	6.00	3.98	62.98	20.60	40.01	0.10	5.33	0.23	11.40	2.75	0.02
OIB	2016	0.8832	7.00	4.05	47.30	21.70	35.79	0.07	6.70	0.23	20.97	2.13	0.04
OIB	2017	0.8978	8.00	4.21	74.16	23.90	44.08	0.11	4.95	0.25	19.78	2.09	0.03
OIB	2018	0.8911	9.00	4.38	83.71	27.40	65.21	0.14	6.14	0.29	20.10	3.63	0.03
OIB	2019	0.8832	10.00	4.50	59.71	29.10	30.91	0.16	6.02	0.19	21.96	2.68	0.02
OIB	2020	0.8641	11.00	4.53	44.74	34.90	18.68	0.20	7.11	0.19	27.09	2.62	0.02
BulB	2013	0.8239	4.00	3.33	78.54	18.60	55.87	0.07	5.12	0.38	2.28	2.65	0.01
BulB	2014	0.8284	5.00	3.48	86.82	19.60	72.56	0.07	5.72	0.42	5.61	3.11	0.02
BulB	2015	0.8494	6.00	3.65	82.66	20.60	62.79	0.10	6.08	0.23	7.71	3.58	0.02
BulB	2016	0.8591	7.00	3.83	78.70	21.70	52.44	0.07	5.70	0.23	9.27	3.31	0.02
BulB	2017	0.8622	8.00	3.99	72.28	23.90	25.85	0.11	4.82	0.28	10.49	2.42	0.02
BulB	2018	0.8477	9.00	4.11	62.50	27.40	50.56	0.14	6.51	0.27	7.86	2.76	0.01
BulB	2019	0.8228	10.00	4.16	71.71	29.10	31.60	0.16	6.97	0.22	11.99	3.35	0.02
BulB	2020	0.8371	11.00	4.28	47.94	34.90	18.62	0.20	7.37	0.22	17.40	2.64	0.03
AB	2013	0.8268	3.00	3.29	90.71	18.60	76.03	0.07	4.66	0.39	3.87	2.41	0.02
AB	2014	0.8586	4.00	3.50	84.41	19.60	72.55	0.07	4.58	0.34	5.33	2.24	0.02

AB	2015	0.8437	5.00	3.66	95.86	20.60	69.53	0.10	4.99	0.25	6.45	3.23	0.02
AB	2016	0.8447	6.00	3.79	73.53	21.70	27.36	0.07	5.67	0.23	10.12	2.73	0.02
AB	2017	0.8496	7.00	3.94	78.57	23.90	33.61	0.11	5.05	0.27	9.63	2.34	0.03
AB	2018	0.8537	8.00	4.09	81.84	27.40	54.44	0.14	5.12	0.31	10.11	3.02	0.02
AB	2019	0.8373	9.00	4.18	107.13	29.10	39.09	0.16	5.39	0.28	12.38	3.66	0.02
AB	2020	0.8471	10.00	4.31	63.56	34.90	11.43	0.20	5.02	0.25	13.95	2.84	0.01
AdIB	2013	0.7544	2.00	2.96	154.34	18.60	138.33	0.07	3.44	0.68	1.89	4.06	0.02
AdIB	2014	0.7502	3.00	3.10	141.61	19.60	71.66	0.07	4.37	0.54	4.28	4.10	0.04
AdIB	2015	0.7405	4.00	3.23	127.08	20.60	42.31	0.10	4.48	0.44	4.56	3.91	0.03
AdIB	2016	0.7415	5.00	3.39	119.56	21.70	40.68	0.07	5.10	0.49	5.00	3.95	0.02
AdIB	2017	0.7781	6.00	3.53	103.84	23.90	29.32	0.11	4.51	0.41	4.90	3.14	0.02
AdIB	2018	0.7859	7.00	3.62	97.10	27.40	29.04	0.14	4.99	0.35	5.91	2.96	0.02
AdIB	2019	0.7984	8.00	3.74	102.14	29.10	37.37	0.16	4.90	0.34	6.33	3.27	0.02
AdIB	2020	0.791	9.00	3.81	104.98	34.90	23.95	0.20	5.63	0.32	7.49	3.55	0.02
DGB	2013	0.7026	1.00	2.58	27.94	18.60	0.00	0.07	3.07	0.96	0.10	-5.72	0.05
DGB	2014	0.7926	2.00	2.94	85.04	19.60	420.32	0.07	5.82	0.59	0.11	2.94	0.02
DGB	2015	0.8086	3.00	3.06	93.87	20.60	41.80	0.10	4.90	0.62	0.25	1.70	0.04
DGB	2016	0.7507	4.00	3.11	109.56	21.70	70.41	0.07	6.44	0.29	0.36	4.24	0.03
DGB	2017	0.795	5.00	3.31	102.14	23.90	24.60	0.11	4.76	0.48	0.36	3.03	0.02
DGB	2018	0.7909	6.00	3.51	104.43	27.40	80.42	0.14	5.44	0.38	0.28	4.01	0.01
DGB	2019	0.8188	7.00	3.74	139.81	29.10	65.36	0.16	4.42	0.45	0.33	4.82	0.01
DGB	2020	0.8195	8.00	3.89	121.24	34.90	58.69	0.20	4.63	0.30	2.07	4.40	0.02
EB	2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EB	2014	0.7955	1.00	3.15	105.01	19.60	0.00	0.07	2.84	0.46	0.03	3.67	0.01
EB	2015	0.7987	2.00	3.34	102.25	20.60	65.16	0.10	4.02	0.32	0.06	2.90	0.02
EB	2016	0.7948	3.00	3.51	121.17	21.70	59.51	0.07	3.28	0.28	0.10	2.90	0.02
EB	2017	0.8125	4.00	3.69	118.04	23.90	58.52	0.11	2.63	0.29	0.12	2.33	0.02
EB	2018	0.8169	5.00	3.81	117.55	27.40	50.39	0.14	3.69	0.26	0.16	2.80	0.02
EB	2019	0.8332	6.00	3.96	89.55	29.10	30.80	0.16	3.64	0.24	0.24	2.57	0.01
EB	2020	0.8389	7.00	4.05	64.96	34.90	35.15	0.20	4.69	0.28	0.28	2.05	0.01

Source: - Own computation from financial statement of banks, 2013-2020 data using Eviews 8

