

# **EFFECT OF CAPITAL STRUCTURE ON PROFITABILITY OF SELECTED PRIVATE COMMERCIAL BANKS IN ETHIOPIA**

A research paper submitted to the school of graduate studies in partial fulfillment  
of the requirement for Degree of Master of Science in Accounting and Finance

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**COLLEGE OF BUSINESS AND ECONOMICS**

**DEPARTMENT OF ACCOUNTING AND FINANCE**

**August, 2020**

**JIMMA, ETHIOPIA**

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## **DECLARATION**

I declare that the research entitled “effect of capital structure on profitability of selected private commercial banks in Ethiopia” has been carried out by me under the guidance and supervision of Eshetu Yadecha (MSc) and Mr. Ganfure Tarekegn (MSc). The research is original and has not been submitted for the award of any Degree or Diploma in any University or institution.

Fikremariam Dagne      Date \_\_\_\_\_ Signature \_\_\_\_\_



## **Abstract**

*The general objective of this study is “to investigate the effect of capital structure on the profitability of selected private commercial Banks in Ethiopia”. To meet the objectives of this study, Explanatory research design was adopted. The sampling technique used in the research was purposive. The panel data was obtained from the audited financial statements of ten private commercial banks for the period of 2010G.C-2019G.C. The panel data fixed effect estimation model was applied for the data analysis through statistical package STATA version 14. The independent variables used for the study were total debt to total asset ratio (TDTA) and Total loan to deposit (TLD.) Return on Asset and Return on Equity were used as a dependent variable to measure the profitability of these selected private commercial Banks and the control variables were spread, and size (capital) of the Banks. The regression results show that Total debt to asset ratio is statistically significant and negative for Return on Asset and statistically insignificant and positive for Return on Equity, Total Loan to deposit ratio was also statistically insignificant and negative for both Return on Asset and Return on Equity. Spread has statistically insignificant and negative for both Return on Asset and Return on Equity. Based on the result discussed above the researcher recommends it was better if these banks focus on capital maximization.*

*Keywords: Capital structure, return on Asset, Return on Equity, total debt to Asset.*

## **Acknowledgments**

Above all, I praise God for giving me his helping hands in all of my moves from the beginning up to the end, for his guidance and grace upon me and for giving me the strength to reach this point in life during all my works and his provision to complete this work.

I extend my gratitude and appreciation to my advisors Eshetu Yadecha (PHD), and Ganfure Tarekegn (Asst. professor) for their continual support and guidance along with the development of this thesis work. I am grateful for their professional discussions and suggestions that helped me to develop a scientific understanding of the subject

My gratitude also goes to Jimma University College of Business and Economics, School of Graduate Studies, Accounting and Finance Department for facilitating things needed for the thesis.

Thanks to all who have been helped me while collecting the data.

My special and great thanks go to my parents and dear wife for her love, support, and encouragement during my academic careers.

Finally, sincere thanks to all my friends and colleagues for sharing me constructive ideas, their inspirations, and comments on my thesis work especially: Mr. Mulualem Haile Michael, Mr. Gadisa Zewge, and Mr. Samuel Teferi.

# Table of Content

## Contents

CERTIFICATE.....	ii
Abstract.....	iii
Acknowledgments.....	iii
List of tables.....	viii
List of figures.....	ix
CHAPTER ONE.....	1
Introduction.....	2
1.1. Background of the Study.....	2
1.2. Statement of the problem.....	3
1.3. Objective of the study.....	5
1.3.1. General objective of the study.....	5
1.3.2. Specific objective of the study.....	5
1.4. Research Hypothesis.....	5
1.5. Significance of the study.....	6
1.6. Scope and limitation of the study.....	6
2. Literature review.....	7
2.1. Introduction.....	7
2.2. Concept of Capital Structure.....	7
2.2.1. Defining Capital Structure.....	8
2.2.2. Optimal Capital Structure.....	9
2.2.3. Components of Capital Structure.....	9
2.3. Financial Performance.....	10
2.3.1. Leverage.....	10
2.4. Factor affects Financial Performance of the Firms.....	13
2.5. Theories of Capital Structure.....	14
2.5.1. Modigliani and Miller.....	14
2.5.2. The Tradeoff Theory.....	15
2.5.3. Pecking Order Theory.....	16
2.5.4. Agency Cost Theory.....	16

2.5.5.	The Market Timing Theory.....	17
2.6.	Empirical Literature Review .....	18
2.6.1.	Empirical Studies in Developed Countries .....	18
2.6.2.	Empirical Study in Developing Countries .....	23
2.6.3.	Empirical Study in Ethiopian Context .....	26
2.7.	Conceptual Framework.....	28
CHAPTER THREE .....		29
3.	Research Design and Methodology .....	29
3.1.	Introduction.....	29
3.2.	Research Design and Approach .....	29
3.3.	Source of Data and Collection Methods .....	30
3.4.	Sampling Design.....	30
3.5.	Data Analysis Method.....	31
3.6.	Model Specification and Variables Description .....	32
3.6.1.	Variables Description.....	32
3.6.1.1.	Dependent Variable.....	32
3.6.1.2.	Independent Variables.....	32
3.6.1.3.	Control Variable.....	33
3.6.1.4.	Model Specification .....	35
4.	Data Analyses and Interpretation.....	38
4.2.	Descriptive analyses of Dependent, Independent and Control Variables .....	39
4.2.1.	Descriptive Analysis of Dependent Variable .....	39
4.2.2.	Descriptive Analysis of independent Variable.....	40
4.3.	Tests for the Classical Linear Regression Model (CLRM) Assumptions.....	40
4.3.1.	Testing for the Average value of the error-term is zero.....	41
4.3.2.	Test of Normality .....	41
4.3.3.	Heteroskedasticity Test .....	42
4.3.4.	Autocorrelation assumption ( $cov(u_i, u_j) = 0$ for $i \neq j$ ).....	43
4.3.5.	Testing for Multicollinearity .....	44
4.4.	Choosing Random effect (RE) versus fixed effect (FE) models.....	45
4.5.	Model specification Test.....	47
4.6.	Correlation matrix Analysis.....	47
4.7.	Regression result analysis .....	49



CHAPTER FIVE .....	55
5. Summary, Conclusion and Recommendation.....	55
5.1. Introduction.....	55
5.2. Summary of the findings.....	55
5.3. Conclusion .....	56
5.4. Recommendations.....	56
5.5. Suggestions for Further Research .....	57
Bibliography .....	59

## List of tables

Table 1:Summary of capital structure theories with firms profitability .....	18
Table 2:descriptive statistics of dependent and Independent variable and also control variable .	39
Table 3: Shapiro-wilk w test for normal data for ROA .....	41
Table 4:Shapiro-wilk w test for normal data for ROE.....	41
Table 5:test of Heteroskedasticity problem for ROA .....	42
Table 6:test of Heteroskedasticity problem for ROE.....	42
Table 7:Variance Inflation factor .....	44
Table 8:correlation matrix.....	45
Table 9:Test for appropriate model (Hausman test) for ROA .....	46
Table 10:Test for appropriate model (Hausman test) for ROE.....	46
Table 11:Correlation matrix dependent, independent and control variable.....	48
Table 12:the relation between ROA with independent variable and control variable .....	50
Table 13:relationship between independent and control variable with ROE .....	53

## List of figures

Figure 1:Conceptual framework .....	28
Figure 2:Autocorrelation assumption .....	43

## **Lists of Abbreviations/Acronyms**

BIB	Buna International Bank
BOA	Bank of Abisinya
CBO	Cooperative Bank of Oromiya
CBE	Commercial Bank of Ethiopia
DA	Deposit to asset
DE	Deposit to equity
DPA	Deposit to asset
DR	Debt ratio
EPS	Earning per share
EQT	Equity over the period
FGLS	Feasible generalized least square
GPM	Gross profit margin
LIB	Lion International Bank
LD	Loan to deposit
MM	Modigliani and Miller
NBE	National Bank of Ethiopia
NIB	Nib international Bank
ROA	return on asset
ROE	return on equity
OIB	Oromiya international Bank
PROF	Profitability
ROA	Return on Asset
ROE	Return on Equity
SMEs	Small and Medium-Sized Enterprises
TDTA	Total debt to asset
UB	United Bank
WACC	Weighted average capital cost
WB	Wogagen Bank

# CHAPTER ONE

## 1. Introduction

### 1.1. Background of the Study

Maximization of the wealth of owners or shareholders is among the main objectives of the firms. The wealth of shareholders' in turn is defined as the current price of the firm's outstanding shares. 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 (Opoku, Adu and Anarfi, 2013).

Capital structure describes how firms finance their overall operations and growth by employing various sources of funds. Firms can use either debt or equity or both to finance their assets. Generally, firms can choose the aforesaid alternative capital. structure (Amanuel, 2011)

However, the best choice of capital structure is a mix of debt and equity. It is averred that in the event that interest is not tax deductible, owners of firms would be indifferent regarding the options of equity and debt. On the other hand, in the event that interest is tax deductible, owners would maximize the value of their firms by employing absolute (100%) debt financing (Amanuel, 2011).

The trade- off theory states that the optimal debt ratio is set by balancing the trade-off between the benefit and cost of debt. According to this theory, the optimal capital structure is achieved when the marginal present value of the tax shield on additional debt is equal to the marginal present value of the financial distress cost on additional debt(Gibson, 2013).

The pecking order theory emphasizes the information asymmetry between the firm insiders and the outside investors suggesting that firms use debt only when the internal financing is not available (Hailu, 2016). Besides, the agency cost theory predicts the capital structure choice based on the existence of agency cost. This theory investigates the relationship between the manager of the firm, and the outside equity and debt holders (Jensen and Meckling, 2014).

## **1.2. Statement of the problem**

Over the past several decades' corporate finance researchers have devoted considerable efforts to transform rationalism of capital structure into empiricism (Aragaw, 2015).

Despite the agreement of researchers in the area of financial management that maximization of shareholder is the ultimate goal and the goal takes into consideration many points that maximize profitability including, the timing of revenues, and that shareholders are taking into consideration the cash flows available, however to maximize profitability hasn't been ignored because it is one of the basic objectives for all companies and is essential for their survival and continuity (Haddad, 2009).

In practice, firm managers who are able to identify the optimal capital structure are rewarded by minimizing a firm's cost of finance thereby maximizing the firm's revenue. If a firm's capital structure influences a firm's performance, then it is reasonable to expect that the firm's capital structure would affect the firm's health and its likelihood of default. From a creditor's point view, it is possible that the debt to equity ratio aids in understanding banks' risk management strategies and how banks determine the likelihood of default associated with financially distressed firms. In short, the issue regarding the capital structure and firm performance are important for both academics and practitioners.

This challenge is directly or indirectly impacts on financial performance of the firms in the medium and long- term period to the firms. Different theories such as Pecking Order Theory, trade off theory, Modigliani-Miller theory and agency cost theory have been developed to try and explain the behavior of firms in choosing or mixing debt and equity source of finance to the firms. The pecking order theory claims that companies tend to issue stock when they can high value in the market. The capital structure of a firm is a blend of debt and equity employed in financing its operations. The capital structure decision is critical for the continued existence of any business organization maximization there turns to stakeholders (Onaolapo and Kajola, 2010).

According to (Modigliani and Miller, 1958) a lot of studies have been carried out in corporate finance to determine the influence of a firm's choice of capital structure on performance of the firms. Capital structure choice of a firm can lead to bankruptcy and have an adverse effect on the performance of the firm if not properly utilized. The study is to find out an appropriate

combination of debts and equity finance source through an increase or decreases its financial performance more efficiently and effectively way to the firms.

In Ethiopia, there are a few studies in relation to determinants of capital structure and determinants of profitability distinctly studied by deferent researchers such as, Ashkenazi (2005), Amanuel (2011) and Bayeh (2011) In addition, Weldemikael (2012) studied on determinants of capital structure of Commercial Banks in Ethiopia and Amdemikael (2012) also assessed factors affecting profitability of banks. But, no one was emphasized on the effect of capital structure on private commercial Banks profitability except Argaw 2015 with the topic “The Impact of Capital Structure on Profitability of Commercial Banks in Ethiopia” by including public Bank (CBE). Hence, as to the knowledge of the researcher there were no studies related to this title “The Effect of Capital Structure on Profitability of private Commercial Banks in Ethiopia”.

Therefore, given the unique features of banks’ financial structure and the environment in which they operate, there are strong grounds for a separate study on the effect of capital structure on profitability of private commercial banks in Ethiopia by emphasizing on banks’ profitability. Based on this to meet the objectives of the study the following research questions are raised.

- ✓ What is the relationship between Total Debt to Asset and profitability of these selected Banks?
- ✓ What is the relationship between Total loan to Asset, and profitability of these selected Banks?
- ✓ What is the relationship between Total Loan to Deposit and profitability of these selected Banks?
- ✓ What are the relationships between growth, spread and size (capital) of firms on profitability of these selected Banks?

### **1.3. Objective of the study**

#### **1.3.1. General objective of the study**

The general objective of this study is to investigate the effect of capital structure on the profitability of selected private commercial Banks in Ethiopia.

#### **1.3.2. Specific objective of the study**

This study is attempted to achieve the following specific objectives:

- ✓ To investigate the effect of Total Debt to Asset on profitability of these selected Banks.
- ✓ To assess the effect of Total loan to Asset, on profitability of these selected Banks.
- ✓ To examine the effect of spread and size (capital) on profitability of these selected Banks.

### **1.4. Research Hypothesis**

Based on theories and empirical studies develops the following hypothesis to find out the effect of capital structure on private commercial Banks profitability given in the study, the following hypotheses are developed for testing.

H1: Total Debt to Asset has a significant relationship with capital structure and has an effect on profitability of these selected private commercial banks.

H2: Total loan to asset has significant relationship with capital structure and has an effect on profitability of these selected private commercial banks.

H3: Total Loan to deposit has significant relationship with capital structure and has an effect on profitability of these selected private commercial banks.

H4: Spread has significant relationship with profitability of these selected private commercial banks.

H5: growth has significant relationship with profitability of these selected private commercial banks.

H6: Asset size (capital) has significant relationship with profitability of these selected private commercial banks.



### **1.5. Significance of the study**

The results of the study will have potential value to Banking industry to understand the effect of capital structure on profitability. The study will have significant role in filling gap of understanding on effect of capital structure on Banks profitability particularly in these selected Banks. In addition to this the study will be useful for Academic researchers as a base line for further study. Finally, the study will be an input for higher government policy makers regarding financial sectors.

### **1.6. Scope and limitation of the study**

The scope of this study is limited to investigate the effect of capital structure on the profitability of private commercial Banks in Ethiopia over the period of ten years, 2010 G.C-2019 G.C. This study is also analyze audited report of respective banks to see the effect of capital structure on selected private commercial banks. In the study only 10 private commercial banks are included; due to the year of experience of the remaining private banks. Also the research was very strong if it includes other variables.

### **1.7. Organization of the paper**

To achieve the objectives of the study, this research paper work is organized into five chapters. The first chapter starts with presenting background of the study, statement of the problem, objective of the study, significance of the study and scope of the study. The second chapter focuses on both theoretical and empirical review of related literature. The third chapter deals with the research methodology by comprising Research design, Population and sample, Methods of Data Collection and source of Data and Methods of Data Analysis. The fourth chapter is discusses about result and discussion. Finally, the fifth chapter is about conclusion and recommendation.

# CHAPTER TWO

## **2. Literature review**

### **2.1. Introduction**

This chapter reviews the theoretical and empirical literature on capital structure of firms. The next section presents definitions and the general theories of capital structure. This is followed by the review of the empirical literature related to the impact of capital structure performance. Finally, conclusions on the literature review and knowledge gaps will present. The majority of organizations strive to attain most favorable capital structure in classify to reduce weighted average capital cost (WACC) and maximize firm performance. In the economic development of Ethiopia the Banking Industry plays an important role.

Capital structures are studied by quite number of researchers within and across the world. Researcher Miller gives guideline for further researches on Capital structure. Now a day the researchers are penetrating for finding other factors as well as how to accomplish the optimal level for the industry. Same model are not suitable for implementation to all of the firms for Capital structure due to economic and political changing situation, asymmetric information and more other reasons. Evidence shows that findings were obtained from the studies as regard to capital structure and financial performance of firms, industry as well as the economy as whole.

### **2.2. Concept of Capital Structure**

Capital structure is essential to how a firm finances its overall operations and growth by using different sources of funds. According to Modigliani & Miller, it is the broadly accepted capital structure theory because it is the foundation of capital structure theory which has been used by many researchers. The theory also give, which firms receive direction and orientation concerning their business activities. It is said to be the financing performance of a firm. In addition to a capital structure represents a means for decision making of business firms and facilitates maximization of return on investment, as well as boosting the efficiency of financing and dividend decisions (Chandrasekharan, 2014)

According to (Khum-aloand, Olalekan and Okurut, 2011) a capital structure is a combination of equity and debt to the firms. The study further added that a firm can select among several alternative sources of capital with different mix of securities. This definition is focusing on the specific proportion of debt and equity used for financing of company.

### **2.2.1. Defining Capital Structure**

Capital structure is the combination of debt and equity source of finance. Capital structure is covered the proportion of the long-term sources of funds used by a firm. It includes debt, preferred stock and common equity. Capital structure is the mix of financing, required to finance the real time investments. Debt source of finance sometime also known as leverage is external source of financing. A firm can choose any capital structure as wishes. It is the result of deliberate choice on the corporate management, investor's attitudes and market conditions for long-term. A manufacture firm could increase or decrease its debt or equity portion by either issuing some debt to buy back stock or issuing stock to pay debt. The main objective of capital structure decision is how to mix the financial sources used by the firm and how to maximize the shareholders' wealth and minimize the firm's cost of capital. The right combination of capital structure of is known as optimal capital structure (Amanuel, 2011)

The term of Capital structure defines according to (Amanuel, 2011) the manner with which company makes its financing decisions, by choosing among the alternative source of financing such as securities, equity and debt. Capital structure, constitute a significant factor that influences performance of the firms. This is because, since cost of bankruptcy exists, further use of debt financing can result to a reduction in yield, even though the use of debt is intended to benefit the company through tax benefits.

The influence of debts source of finance on performance of the firms observed by those theories which includes: tax theory, agency cost theory and signaling theory. The signaling theory reveals that when the information is availed, then debt should have a positive and significant impact on performance of the firms. The agency theory, on the hand presented that debt source of finance can have two different effects on performance of the firms, both negative and positive. The positive effect occurs where there is an agency cost between principle and agent.

As taxation theory, the influence of taxation is dynamic in nature, according to this principle; it is not easy to establish a correlation between debt and performance; as it is dependent on tax deductibility of interest, revenue, tax and no liabilities tax cushion (Kebewar and Shah, 2012)

### **2.2.2. Optimal Capital Structure**

A right combination of debt and equity to ensure a trade-off between risk and return to the shareholders is necessary. A capital structure with a reasonable combination of debt and equity source of finance is called optimum capital structure. (Paramasivan and Subramanian, 2009) explain the combination of debt and equity that achieves to the maximum value of the firm and minimizes the WACC. Hence, the optimal capital structure is balancing between risk and return so as to maximize the shareholder of the firms.

### **2.2.3. Components of Capital Structure**

In general a capital structure divided into two components that are debt and equity financing source in firms/ organization.

#### **2.2.3.1. Equity Financing**

Equity is one of the sources of finance that represents the ownership of the firm or the company. Equity shares are popular among the investing class. The form of equity finance source such as common stock and preferred stock. The common equity represents the amount that all common shareholders have invested in a company. According to (Evans, 2000), capital consists of two classification those are Contributed capital, which is the money that was originally invested in the business in exchange for shares of stock or ownership and Retain earnings, which represent profits from past years that have been kept by the company and used to strengthen the balance sheet or fund growth, acquisitions, or expansion.

#### **2.2.3.2. Debt Financing**

According to (Evans, 2000), The debt finance source sometimes known as internal source of finance it also composed of short term and long term debt. The safest type is generally considered long-term debt because the company has years, if not decades, to come up with the principal, while paying interest only in the meantime In components of capital structure, debenture capital is a part of borrowed capital; the creditors of the company are the debenture holders.

Different types of debentures are issued for the convenience of investors. Also, organizations can obtain long-term and medium term loans from banks and financial institutions.

## **2.3. Financial Performance**

A financial performance is profitability ratios such as Return on Assets, Retained Income, Earnings per share, Return on Equity, Net Profit margin, Price per Earning ratio, MarketCapitalization, etc. When determining (or other monetary unit) invested by shareholders Return on Equity is measured as Net Income divided to Average Shareholders' Equity (including Retained Earnings) (Evans, 2000).

$$\text{Return on Equity (ROE)} = \text{Income Net} / \text{Stockholders Equity}$$

### **2.3.1. Leverage**

The capital structure of a firm consists of debt and equity. Debt is by considering further classified into short and long term. (Gibson, 2013) argues that firms benefit from tax deduction through leverage, which in turn increases the value of the firm. As such, a positive relation is detected between leverage and performance of the firms. Different literatures often discuss these components as ratio of total assets and equity. The components are discussed hereunder:

- **SHORT TERM DEBT RATIO (STDR)**

The ratio of short term debt represents the portion of company's assets that financed by debt below than one year, while it can be calculated short term debt to total asset. This measures how relative short-term debts to total asset of a firm are to be repaid within an accounting period. The short term debt to total assets ratio is a measure of the financial leverage of the company. It tells what percentage of the assets is financed by short term debt (Gibson, 2013).

- **LONG TERM DEBT RATIO (LTDR)**

A long term debt is the amount owed for a period exceeding of one year and it appear in the balance sheet. This type of debt may be in the form of a bank loan, mortgage bonds, debenture, or other obligations not due for one year. It is calculated as the total long term debt divided by total asset, while this ratio shows the percentage of firms assets financed through loans that above than one year (Gibson, 2013).

- DEBT EQUITY RATIO (DER)

The Debt-to-Equity Ratio, sometimes also referred to as the leveraging ratio or the gearing ratio, measures the relative proportion of shareholders' equity and debt used to finance a company's assets. It indicates the proportion of borrowed funds to own funds. The debt to equity ratio is calculated by dividing the company's total debt divided by shareholder's equity. Shareholder's equity or equity shareholders' funds or net worth is arrived at by adding up equity capital and reserves. The ratio is borrowed funds as the number of times of own funds. It indicates what proportion of equity and debt the company is using finance its assets. A high debt/equity ratio generally means that a company has been aggressive in financing its growth with debt.

The debt to equity ratio is considered a balance sheet ratio because all of the elements are reported on the balance sheet. Each industry has different debt to equity ratio benchmarks, as some industries tend to use more debt financing than others. A lower debt to equity ratio usually implies a more financially stable business, firms with a higher debt to equity ratio are considered more risky to creditors and investors than firms with a lower ratio. Unlike equity financing, debt must be repaid to the lender. Since debt financing also requires debt servicing or regular interest payments, debt can be a far more expensive form of financing than equity financing (Gibson, 2013)

- TOTAL DEBT TO ASSET RATIO

The debt to asset ratio is a leverage ratio that measures the amount of total assets that are financed by creditors instead of investors. In other words, it shows what percentage of assets is funded by borrowing compared with the percentage of resources that are funded by the investors. Basically it illustrates how a company has grown and acquired its assets over time. Companies can generate investor interest to obtain capital, produce profits to acquire its own assets, or take on debt. Obviously, the first two are preferable in most cases.

This is an important measurement because it shows how leveraged the company by looking at how much of company's resources are owned by the shareholders in the form of equity and creditors in the form of debt. Both investors and creditors use this figure to make decisions about the company. Investors want to make sure the company is solvent, has enough cash to meet its

current obligations, and successful enough to pay a return on their investment. Creditors, on the other hand, want to see how much debt the company already has because they are concerned with collateral and the ability to be repaid. If the company has already leveraged all of its assets and can barely meet its monthly payments as it is, the lender probably won't extend any additional credit.

$$\text{debt to asset ratio} = \text{total debt} / \text{total asset}$$

- DEPOSIT TO ASSET (DPA)

Deposit to Asset (DPA) as the major source of external finance is deposits; deposit to asset ratio was used as an independent variable to examine the impact of deposit on profitability of commercial banks in Ethiopia. Since the total debt of banks composed of deposit and non-deposit liabilities, this variable intended to show the impact deposit finances and hence the non-deposit financing decision on profitability. (Abadi and Abu-Rub, 2012) found Positive relationship between deposit to asset and profitability, Based on the nature of banks operation and empirical evidences, in this study a positive relationship between deposit to asset ratio and profitability of banks were expected. The formula used to calculate this variable was;

$$DPA = \text{Total Deposit} / \text{Total Asset}$$

- LOAN TO DEPOSIT RATIO (LD)

The formula for the loan to deposit ratio is exactly as its name implies, loans divided by deposits. The loan to deposit ratio is used to calculate a lending institution's ability to cover withdrawals made by its customers. A lending institution that accepts deposits must have a certain measure of liquidity to maintain its normal daily operations. Loans given to its customers are mostly not considered liquid meaning that they are investments over a longer period of time. Although a bank will keep a certain level of mandatory reserves, they may also choose to keep a percentage of their non-lending investing in short term securities to ensure that any monies needed can be accessed in the short term.

$$\text{loan to deposit ratio} = \text{loans} / \text{deposits}$$

## 2.4. Factor affects Financial Performance of the Firms

- SPREAD

One of the expected benefits of financial liberalization and deepening of the financial sector is the narrowing of the interest rate spreads, i.e. the difference between the interest rate charged to borrowers and the rate paid to depositors. This is predicated on the understanding that liberalization enhances competition and efficiency in the financial sector.

The purpose of this variable in this study was to serve as control variable. (Khum-aloand *et al.*, 2013) used the definition of spread as the difference between income received on loans (divided by total loans) and interest paid on de-posits (divided by total deposits). The empirical studies of (Vickery,j 2011) and (Hailu, 2016) revealed a positive relationship between spread and net interest margin or profitability. Due to the fact that the profitability of core operations of banks depends on interest income and expense and in line with empirical evidences, in this study a positive relationship between spread and profitability was expected.

The formula used to calculate was:

$$spread = (interest\ income - interest\ paid) / (loan\ &\ advanced\ deposit)$$

- FIRM SIZE

The firm Size is one of the most widely accepted and determines the level of economics of scale of the firms. When a firm economics of scale is larger the average production cost is lower and operational activities are more efficient. The size of the firm, which is measured by the logarithm of total assets, could influence its financial performance. Prior research suggests that firm's size may influence its performance, larger firms have a greater variety of capabilities and can enjoy economies of scale, which may influence the results and the inferences, so firm size is considered as a control variable in the model (Hailu, 2016) and Kajola, 2010(Salim and Yada, 2012).

$$Size (SZ) = Natural\ log$$

According to trade off theory, the larger firms are having stable cash flows and less chance of bankruptcy. Hence, the large firms prefer leverage and are having high level of leverage.



Therefore, the relationship between firm size and leverage is positive (Myers, 1984). However, some firms may become too large that they incur high structural and operational cost. (Salim and Yada, 2012) asserted the size of the company can have a positive effect on financial performance because the larger firms can use this advantage to get some financial benefits in business relations. (Salim and Yada, 2012) also found a significant positive relationship between firm size and financial performance measures.

## **2.5. Theories of Capital Structure**

### **2.5.1. Modigliani and Miller**

Modigliani and Miller theory is published in (1958) by Merton Miller and Franco Modigliani. They suggest that the value of firms is not affected by combination of debt and equity source of finance. In the absence of taxes and other market imperfections, the value of the total does not change as it is divided into debt, equity, and other securities. They believed that the firm value is determined based on the active side of the balance sheet and the value is generated by the earning power and risk of the underlying asset. The total value of the firm must be the same, when the firm's combination of different financing. Based on this theory capital structure is irrelevant.

(Gujarat, 2004) show that a company performance and its value is a growing function of leverage because of interest payments which are tax deductible at the company's level. Practically the market is ineffective because of the agency costs, transaction costs, tax, asymmetric information and costs of financial distress and any other incomplete components. Their theory has been criticized too much because of some weak points and its irrelevant hypotheses of the reality, but it still supplies the basis for many other theorems proposed by many researchers.

Modigliani and Miller theory basically assumed that different corporations and investors could borrow at the risk-free rate. Although risky debt has been introduced into the analysis by others, to reach the ROA and ROE Miller conclusions it is still necessary to assume that both corporations and investors can borrow at the same rate. MM says that there are some assumptions and under these assumptions Modigliani and Miller theory will work properly.

Perfect Capital Market

- No taxes
- Investors are Rational
- Here are no brokerage costs
- There are no bankruptcy costs
- The EBIT is not affected by the use of debt
- No bankruptcy costs etc.

The basic and old theories of capital structure basically say that an optimal level of capital structure is good and required by firm. It will help in reducing the cost and it will also result in increasing the profits. Therefore, MM conclude that the market value of a firm is independent of its capital structure in perfect capital markets with no income taxes. In summary the theory states that the value of a firm is invariant with respect to its leverage policy in an arbitrage -free market when there is no corporate income tax and no bankruptcy cost: whether firm is financed through debt or equity, its value remains the same.

### **2.5.2.The Tradeoff Theory**

The trade-off theory of capital structure is one of the most common explanations to firms' capital structure. The trade-off theory assumes that the optimal capital structure can be determined by finding the balance between the debt benefits of tax savings and the debt costs of higher risk for financial distress. The trade-off theory is built on the tax advantage of debt financing in business firms. Trade-off theory indicates two features in debts financing, one is profitability, and one is the risk. This theory supplies a probability that a firm might get optimal capital structure, which is an improvement of capital structure (Gujarat, 2004).

According to the trade-off theory every company should have an optimal capital structure. The trade-off theory states that the optimal debt ratio of a firm is determined by a trade-off between cost and benefits of borrowing, holding the firm's assets and investment plans constant. Firms balance debt and equity Positions by making trade-off between the value of interest tax shields and the cost of bankruptcy or financial distress. Provided there are no adjustment costs attached to capital structure changes, the observed capital structure should be optimal in the sense that it maximizes the firm value (Gujarat, 2004) Thus, this study seeks to find out if use external funds

up to where gains from extra shilling in borrowing is the same as the cost due to increased profitability as a result of financial distress. In addition, the theory does not identify a precise optimal capital structure, hence the reason for the study so as to address this gap.

### **2.5.3. Pecking Order Theory**

This theory also begins through the asymmetric information in the firms. The pecking order theory is based on asymmetric information between managers of a company and external investors. The pecking order theory explains how companies select to get new funding for their future activities and growth. The firm manager have more information than external parties about the firms risk, return, value of the firms, and prospects of the business, the information determine the choice of internal and external finance as well as choice of between debt and equity financing. The pecking order theory suggested a substitute interpretation of why companies select particular capital structure, famed as the pecking order theory (Gujarat, 2004)

According to the pecking order model the firms will first use internal funds or retained earnings before issuing debt and will finally only issue equity under duress or when the investment requirement so far exceeds debt capacity that it would lead to excessive leverage(Gujarat, 2004). To avoid the problem arising from information asymmetry firms usually fulfill their financing needs by preferring retained earnings as their main source of financing, followed by debt and finally external equity financing as the last resort. This theory explains that the company has the sequence of preference in choosing a source of corporate funding (Gujarat, 2004) Therefore, the profitable firms are in less need of debt, pecking order theory assumes a negative relation between financial leverage and firmperformance. This negative relationship the empirical study supported by named as (Gujarat, 2004).

### **2.5.4. Agency Cost Theory**

The theory was developed on the thought that the interest of shareholders. The conflicts between shareholders and managers, as well as the conflicts between shareholders and bondholders will raise costs in the firms operating, investing and financing activities. As such, it should be expected that a positive relationship will exist between corporate performance and firm leverage (capital structure) under agency theory. They argued that agency costs arise because of the

separation of ownership and control. The theory posits that firm's capital structure is determined by agency costs, which includes the costs for both debt and equity issue. The costs related to equity issue may include: the monitoring expenses of the principal (the equity holders), the bonding expenses of the agent (the manager), and reduced welfare for principal due to the divergence of agent's decisions from those which maximize the welfare of the principal.

According to (Gujarat, 2004), the agency cost is a combination of direct and indirect costs which results from principals and agents acting in their own best interest. Shareholders want an increase in the value of the firm, Managers prefer flexibility in decision making while Creditors are concerned about getting their money back. The Agency theory and optimal capital structure" argues that Agency costs arises because managers own only a fraction of the shares of the company. This partial ownership will cause the managers to work less vigorously and will consume more luxuries, like company cars, expensive hotels, since majority of the owners share most of the costs.

#### **2.5.5. The Market Timing Theory**

The Market Timing Theory is contrast with the pecking order theory and the trade-off theory claims that „market timing“ is the first order determinant of a corporation's capital structure use of debt and equity source of finance (Graham, 2003) In other way, firms do not generally care whether they finance with debt or equity; they just choose the form of financing which, at that point in time, seems to be more valued by financial markets. The organization or the firm's issues equity securities when they perceived that their stocks are overvalued and buys it back when they find that shares are undervalued.

This theory states that manager should takes advantage of the information gap and makes critical analysis of the funds market. The importance of this is information asymmetry can be costly to firms if the investors misinterpret the manager's behavior and charge them unfairly that is affecting the firm's performance. Banker and (Polk and Sapienza, 2009) recommend this new theory of capital structure, which suggests that managers can increase current shareholder's wealth by timing the issue of securities. Therefore, firms time their equity issues by selling new stocks when the stock price is perceived to be overvalued and buying back own shores when they are undervalued.

**Table 1: Summary of capital structure theories with firms' profitability**

<b>Theory</b>	<b>Relationship between firm performance and financial leverage</b>
Modigliani and Miller (1963)	Positive
Trade off Theory	Positive
Pecking- Order Theory	Negative
Agency cost Theory	Positive

*Source: Researcher developed from theoretical reviews*

## **2.6. Empirical Literature Review**

### **2.6.1. Empirical Studies in Developed Countries**

Reviewing Empirical finding is the way of relating ones work with others previous work on the specific topic of study to prove or disprove with one's own empirical findings. Some best reviewed empirical finding of this specific topic; then gaps noticed from this findings analyzed.

Over the past several decades' corporate finance researchers have devoted considerable efforts to transform rationalism of capital structure into empiricism(Hailu, 2016).

(Hailu, 2016) studied the relationship between capital structure and profitability using data from 252 non-financial companies in the period from 1999 to 2008 in ethiopia Stock Exchange. Consistent with earlier theories, it found a positive association between the return on equity and short-term debt. This suggests increasing short-term debts with low interest rate will lead to increase in profitability but when firms increase long-term debts, it results in a decrease in profitability.

A study by (Khum-aloand, Olalekan and Okurut, 2011) when he investigated the relationship between capital structure and profitability of listed firms on the Ghana Stock Exchange (GSE) during a five-year period (1998-2002). Panel data methodology and regression analysis were used in the estimation of functions relating the return on equity (ROE) with measures of capital structure. Findings from the study reveal a significantly positive relation between the ratio of short-term debt to total assets and ROE. However, a negative relationship between the ratio of long-term debt to total assets and ROE was discovered. This implies that, an increase in the long-term debt position is associated with a decrease in profitability and a positive association between the ratio of total debt to total assets and return on equity.

(Nirajini, A., & Priya, 2013) findings regarding the effect of capital structure on profitability by examining the effect of capital structure on profitability of industrial companies listed on Amman Stock Exchange during a six-year period (2004-2009). The study sampled 39 companies and applied correlation and multiple regression analysis. The results revealed a significant negative relation between debt and profitability. These findings imply that an increase in debt position is associated with a decrease in profitability; thus, the higher the debt, the lower the profitability of the firm. The results also show that, profitability increases with control variables; size and sales growth, and their findings contradict with prior empirical studies by (Amanuel, 2011) and (Amanuel, 2011)

In congruence with(Nirajini, A., & Priya, 2013) findings, (Nirajini, A., & Priya, 2013) also examined the capital structure and profitability of Nigerian listed firms using the Agency Cost Theory perspective with a sample of seventy (70) over a ten-year period (2000 – 2009) with the aid of the Nigerian Stock Exchange Fact Book covering the period under review. Panel data for the firms were generated and analyzed using fixed effects, random-effects and Hausman Chi Square estimations. Two independent variables served as measure of capital structure: debt ratio (DR) and equity over the period (EQT) while profitability (PROF) as the only dependent variable. The result showed that debt ratio is negatively related with profitability whilst equity over the period is directly related with profitability.

The effect of capital structure of financial institutions was first made by Berger who found a positive relationship between capital asset ratio and earnings of the bank. This was contradicting with the conventional relationship between earnings and capital, as higher capital reduces the

return on equity(Berger 1995). In testing bank efficiency, Berger and DeYoung(1997) found that there is an inter temporal relationship between quality of loans; efficiency and bank capital. They concluded that cost inefficient banks tend to have high loan problems and bad quality loans. In examining the relationship Tobin's Q and insider and outsider holdings, McConnell and Servaes (1990) found that Tobin's Q increase then decrease as the excess holdings on each side lead their cost to increase more than their benefits to the non-financial firms.

In comparing banks to non-financial firms it is found that banks are highly levered. Flannery(1994) found that banks are influenced by debt in the same way as any other firms, yet they operate with unusually high leverage. U.S. banks in 1990 had a 6.5% ratio of equity to asset compared to a capital ratio of 55% for non-financial firms. This is normal if we know that financial firms are providers of loans and is not mechanically linked to their role as deposit takers. Deposit-taking financial institutions have substantial liabilities over and above their deposit base in the form of subordinated debt. U.S. banks non-deposit liabilities(commercial notes and bonds) accounted for 26.5% of their total liabilities in 2002 Saunders and Cornett(2003).

(suleiman M.Abbadi, 2016) found a significantly positive association between profitability and debt ratios in a study designed to investigate the relationship. They argued that as such, profitable firms are more attractive to financial institutions as lending prospects. This is because; such firms are expected to have higher tax shields and low bankruptcy. (suleiman M.Abbadi, 2016) also reported a significantly positive relationship between the ratios of short term debt to total assets and profitability but a negative association between the ratio of long term debt to total assets and profitability. (suleiman M.Abbadi, 2016) investigated the relationship between capital structure, ownership structure and firm performance across different industries using a sample of French manufacturing firms. They found a positive relation between capital structure and profitability.

The effect of capital structure on firms' profitability using sampled banks from Kenya examined. Their study found a positive relationship between short term debt and profitability, but found a negative relationship between long term debt and profitability. Finally, the study found no relationship between total debt and profitability. The authors argue that the implication of these findings is that the association of short term debt and the financial performance in contrast attests

the static trade-off theory. The study did not provide any practical implication of the findings other than linking it to the Static Trade-off theory. The study also used a sample size of 11 which is too small for a study of this magnitude. However, it is usually the case in studies using developing countries. The study admitted that in the light of the whole debate it is suggested that existing theories of capital structure contribute to some extent in the decision-making process though certain aspects of the theories are partially refuted. The definite reason is the fact that the capital structure decision is a complex, multi-dimensional problem; thus capital structure decisions are likely to be the product of multifarious group processes. Simply it is difficult if not impossible to mull over all relevant factors with bounded rationality, at least in the current scenario.

In-depth case study observations of individual institutions' financing decisions over time would be especially valuable in exploring this diversity (Suleiman M. Abbadi, 2016).

(Suleiman M. Abbadi, 2016) studied the relationship between capital structure and banks performance in 37 countries in Sub-Saharan Africa for the period (2000 – 2006) using Panel Data models. He found there is no significant relationship between the proportions of LA, SLA, and LLA, and the ROA, ROE, and NIM. While as to control variables, he found that size has no significant impact on ROA and ROE, but it has a significant impact on NIM. Further, the assets tangibility has no significant impact on ROA, ROE, and NIM. While the growth rate has a significant impact on

ROA, ROE, and NIM, while the tax rate and real growth domestic product have no significant impact. While the interest rates have no significant impact on ROE and NIM, but have a significant impact on ROA. Thus, the inflation rate has no significant impact on ROA, ROE, but has significant impact on NIM.

The study conducted by (Suleiman M. Abbadi, 2016) investigated the relationship between capital structure and firm performance. They used panel data procedure for a sample of 237 Malaysian listed companies on the Bursa Malaysia Stock exchange during 1995-2011. The performance is measured by return on equity, return on asset, Tobin's Q and earning per share and they were used as dependent variables. The capital structure measures such as long term debt, short term debt, total debt ratios and growth were used as independent variables and Size is a control variable. The results of the study indicated that a firm's performance has a negative relationship with short term debt, long term debt, and total debt. Moreover, they found



positive relationships between the growth and performance for all the studied sectors. Tobin's Q reports demonstrate a significant positive relationship between short term debt and long term debt. It finding reveal that total debt has a significant negative relationship with the performance of the firm.

(suleiman M.Abbadi, 2016) made a study on the impact of capital structure on performance of banking firms in Bangladesh from the period 2001 to 2015. The study takes seven banks operating in Bangladesh. Return on equity and return on asset was used as dependent variables. The independent variable used to measure capital structure were short term debt to total asset and long term debt to total asset. Based on, the regression result the study found that significant positive relationship between the short-term debt to total assets ratio and firm performance. So, the studies conclude that a significant positive association between the short-term debt to total assets ratio and firm performance measured in terms of ROA and ROE.

(suleiman M.Abbadi, 2016) conducted the impact of capital structure on profitability of 36 publicly listed construction firms in Malaysia from 2011- 2015. The objective of study is to determine the impact and significance of capital structure on profitability, the relationship between DA with ROE, ROA and NPM and the relationship between DE with ROE, ROA and NPM. The researcher used secondary data from audited financial statements of construction firms published in Bursa Malaysia Stock Exchange site. Quantitative methodology using random sampling was employed and the data collected were analyzed using excel and E-views 7 econometric software to come up with descriptive, regression and correlation results. The findings also showed a negative relationship between DA and DE with ROE, ROA and NPM. So, according to the results, for construction firms in Malaysia which seek to maximize their profit, they should seek to reduce both debt to asset and debt to equity. This means it is better for construction firms to rise more funding from equity rather than debt, if the objective is to maximize profitability.

In Pakistan(suleiman M.Abbadi, 2016) conducted the impact on capital structure & corporate ROA, ROE, and EPS. The study suggests that the firms raise debt finance to reduce the cost of capital and enjoy tax advantage but debt level over the optimum capital structure has a significant negative impact on ROA, ROE, and EPS.

### **2.6.2. Empirical Study in Developing Countries**

In Kenya, Kodongo, Mokoaleli-Mokoteli and Maina (2014) investigated the relationship between leverage and the financial performance of listed firms in Kenya. The results suggested that leverage significantly and negatively affects the profitability of listed firms in Kenya. They further documented that leverage has no effect on firm value. The results were robust to alternative panel specifications and held for both small size and large-size firms.

(Opoku, Adu and Anarfi, 2013b) conducted study on the relationship between capitals structures on the performance of non-financial companies listed in the Nairobi Securities Exchange (NSE), Kenya. The study was also employed an explanatory non-experimental research design. The study also used as census of 42 non-financial companies listed in the Nairobi Securities Exchange, Kenya. The data were extracted from the Nairobi Securities Exchange hand books for the period 2006-2012. The study applied panel data with random effects models. Feasible Generalized Least Square (FGLS) regression results revealed that financial leverage had a statistically significant negative association with performance as measured by return on assets and return on equity. The study concluded that increased financial leverage has a negative effect on performance as measured by ROE of non-financial companies listed in the NSE, Kenya. The study established that as a company increases financial leverage the performance as measured by ROE declines contrary to expectations based on the agency theory. The study recommended that managers of listed non-financial companies should reduce the reliance on long term debt as a source of finance.

(Opoku, Adu and Anarfi, 2013b) has conducted a study that examines the impact of capital structure on financial performance of firms in Nigerian banking industry. Data were collected from Annual Reports and Accounts of the sampled companies from the Nigerian Stock Exchange for the period of five years i.e. 2010 – 2014 with seven companies. The data were analyzed using STATA software version 12.00 where summary of descriptive statistics, correlation and multiple regressions results were obtained and analyzed. The dependent variable is the most usual accounting performance ratio; ROE is the measure of ratio of earnings before interest and tax to ordinary shareholders capital. Based on the findings the paper recommends that cement companies should encourage the use of long term debt in their capital structure since it has positive impact on their financial performance and managers

in the cement industry should ensure both long and short term debt becomes relevant in influencing their performance as measured by return on assets and equity by making proper utilization of the loan capital.

A study was by (Opoku, Adu and Anarfi, 2013) on the impact of capital structure on Firms performance in Morocco covered from 2014 to 2016. The total sample was 53 companies operating in the countries and 15 different industries based on descriptive statistic. The study also used as return on asset and return on equity to measure the firms performance as dependent variable, while independent variables are debt ratio, debt equity ratio and control variables also the firms size and industries. The return on asset used as proxy to firms' financial performance, the study concludes that there is significant negative impact of the level of leverage on firms' profit. On other hand, return on equity firm performance, the results reveal that there is statically significant inverse relationship between return on shareholders' equity and debt to equity ratio; hence the financial firm's performance is affected by the level of leverage. In return on equity a significant and positive impact of size on return on equity it implies that bigger the firm higher the profit. Based on the study the financial strategy of firms should adopt Pecking-order theory, which state that profitable firms rely less to external sources to finance their activities.

(Opoku, Adu and Anarfi, 2013) made a study to identify the impact of capital structure on firm performance of Malaysia listed industrial Product Company. Convenience sampling technique was used in this research to select 50 industrial product companies listed in Bursa Malaysia main exchange market based on available of 2011 to 2015 annual report. The independent variables used in this research are debt to equity ratio, total debt ratio and total equity ratio. Return on asset, return on equity and earnings per share is used as dependent variable to measure firm performance. The regression result found that debt to equity has negative impact on ROA, total debt ratio and total equity ratio has insignificant impact on ROA. The debt to equity has a negative significant impact on EPS, total debt ratio has positive significant impact on EPS and total debt has insignificant impact on EPS. Based on the study result, total debt ratio has a positive significant on ROE and EPS. Finally, the Firm manager should consider the impact of debt finance on firm performance before making capital structure decision to maximize firm performance and shareholder wealth.

(Opoku, Adu and Anarfi, 2013) made a study that mainly aimed to establish the effect of capital structure on financial performance of banking firms listed on the NSE from the period of 2012 up to 2016. On other hand, the specific objectives of the study were to establish the effect of debt ratio on financial performance of consumer goods firms listed on the NSE and to determine the effect of firm size on financial performance of consumer goods firms listed on the NSE. The study targeted 12 firms listed on the Nairobi Securities Exchange. The study employed a dynamic panel data regression model and E-views software was used for data analysis. The findings of the study concluded that debt ratio and firm size were found to be important aspects of capital structure influencing financial performance of consumer goods firms listed on the NSE. The study recommends a balance when financing a firm through either debt or equity. In addition to listed consumer goods firms with high levels of current assets should consider using more equity to finance their daily operations.

The study by (Opoku, Adu and Anarfi, 2013) investigated the influence of the choice of capital structure decision on financial performance of banking firms in Kisumu County. The specific objectives of the study were to investigate the effect of financial debt-ratio, debt-equity ratio and weighted average cost of capital on the financial performance. The sample of the study consisted of three sugar manufacturing firms in Kisumu County. The study used secondary data which was obtained from published financial statements from a period of 2011-2015. The financial data also was analyzed by statistical package for social science (SPSS) version 21. The findings indicated that debt-ratio had a negative insignificant statistical relationship while debt equity ratio had a significant negative effect on monetary performance measured by ROE. It also revealed that WACC had positive significant effects with financial performance of the sugar firms. The study recommended that Sugar firms that are in position to finance their operations using equity should reduce debt financing so as to lessen the risks connected to borrowing hence improve on their financial performance. It also recommended to firms' management should strike a balance between their choice of capital structure and the effects on its performance as it affect the shareholders risks, returns and cost of capital.

Saeedi and Mahmoodi (2011) investigated the link between capital structure and performance of companies listed in Tehran Stock Exchange. In the study, they found measure of market to have a positive impact on capital structure. However, whereas ROA had a positive impact on capital

structure, there was no noteworthy correlation between ROE and capital structure. Kyereboah-Coleman (2007) study revealed that high levels of debt of micro-finance firms in sub-Saharan Africa to be positively correlated with performance. Distinctively, studies done in different countries on capital structure in Africa seem to constantly report a negative correlation between capital structure and firm value Abor (2007) for South Africa and Ghana, Amidu (2007) for Ghana and Onaolapo and Kajola (2012) for Nigeria. However, Ebaid (2009) found a weak-to-no-effect of capital structure on firm performance in Egypt.

### **2.6.3. Empirical Study in Ethiopian Context**

In Ethiopia, there is no empirical study directly related with the subject matter of this study, “The impact of capital structure on profitability of private Commercial Banks of Ethiopia” with an emphasis on core business operations profitability of banks. However, there are a few studies in some areas of corporate finance. Empirical studies in the banking sector of Ethiopia (Hailu, 2016) examined the relationship between leverage and firm specific (profitability, tangibility, growth, risk, size and liquidity) determinants of capital structure decision, and the theories of capital structure that can explain the capital structure of banks in Ethiopia using a mixed method research approach by combining documentary analysis and in-depth interviews. More specifically, the study used twelve years (2000 - 2011) data for eight banks in Ethiopia. The findings revealed that profitability, size; tangibility and liquidity of the banks are important determinants of capital structure of banks in Ethiopia. However, growth and risk of banks are found to have no statistically significant impact on the capital structure of banks in Ethiopia. In addition, based on the results of the analysis the Author indicated that pecking order theory is pertinent theory in Ethiopian banking industry, whereas there are little evidence to support static trade-off theory and the agency cost theory. Hence, the author recommended banks to give due consideration to profitability, size, liquidity and tangibility in their determination of optimum capital structure.

On the other hand, (Hailu, 2016) also assessed the factors that affect bank profitability in Ethiopia covering the period of 2000-2011. Mixed research approach (data obtained through the structured document reviews and in-depth interviews) were applied. The analysis also managed through the multiple linear regressions model, OLS. The dependent variable was ROA as a single measure of profitability and it was measured as net profit before tax divided by total assets. The

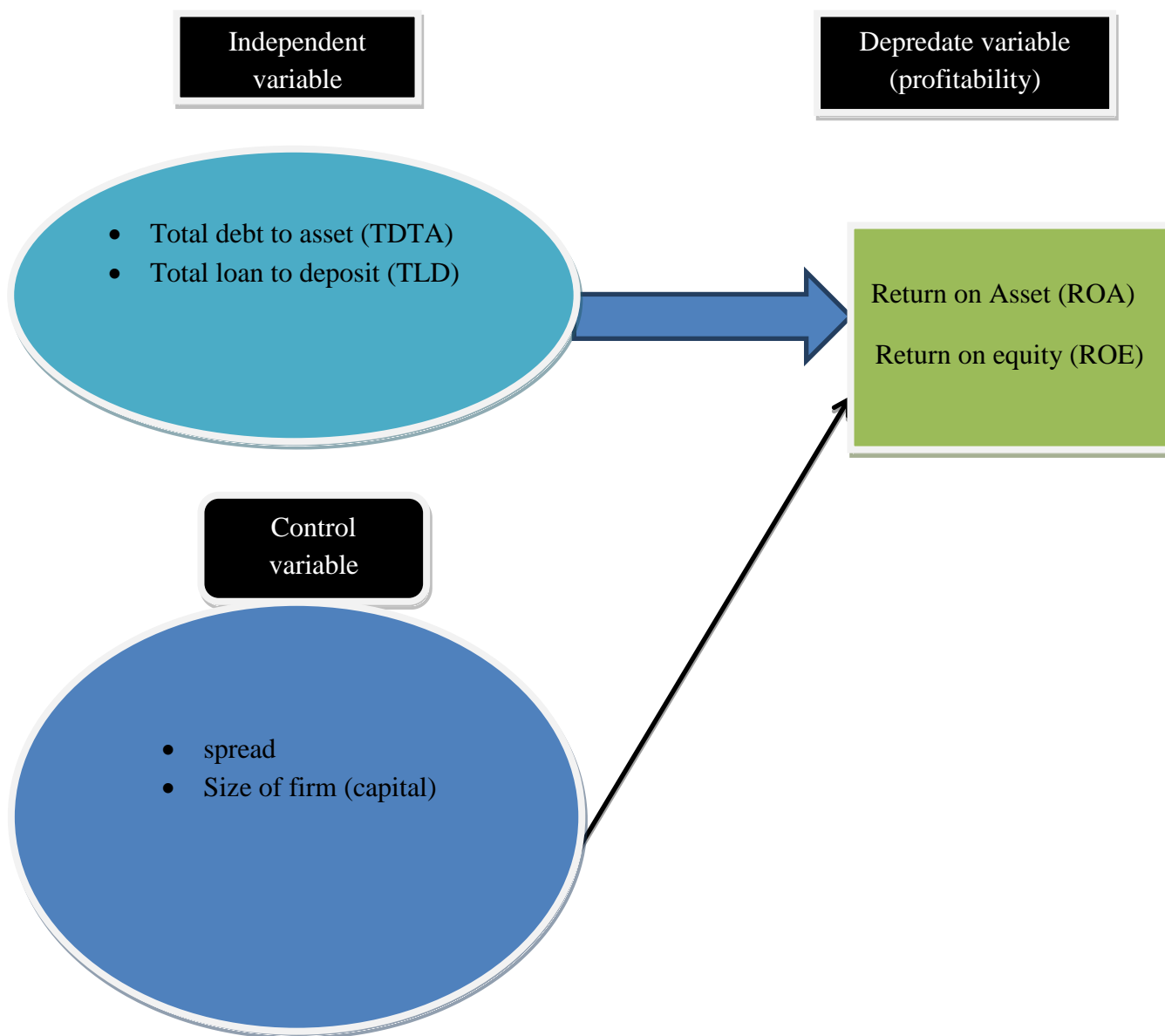
independent variables includes; equity-to-total asset ratio (the inverse of the leverage ratio), Operational efficiency, Income diversification, Liquidity risk, Asset Quality, Real GDP growth and Inflation. The result indicated that capital strength is one of the main determinants of profitability of banks in Ethiopia.

According to (Hailu, 2016) Capital structure/Leverage as measured by debt to asset ratio had statistically significant negative relationship with profitability, which was in line with prior expectation. This result also supports the pecking order theory and prefers using internal finance before raising debt or equity. On the other hand, deposit to asset ratio had statistically significant positive relationship with profitability, which was also in line with prior expectation. Similarly, liquidity (loan to deposit) had a positive and statistically significant relationship with profitability, which was also in line the expected sign. Furthermore, the effect of control variables on profitability of banks in this study, the result shows that as there was positive and statistically significant relationship between spread and profitability, which is in line with prior expectation.

(Hailu, 2016) also besides, the results of the study indicated that bank size had statistically significant positive relationship with profitability, which was consistent with prior empirical evidences and the expected sign. The result also implies that the bigger the bank, the more economics of scale and hence more profitability. However, Growth had statistically insignificant relationship with profitability of core business operations of commercial banks

## 2.7. Conceptual Framework

The following figure depicts the conceptual framework of the study



**Figure 1: Conceptual framework**

Source: researcher's personal design

The above figure shows conceptual framework of how all the independent variables are related with the dependent variable and the control variable.

# CHAPTER THREE

## 3. Research Design and Methodology

### 3.1. Introduction

In this chapter, the researcher was concentrated on the methods that adopted throughout the study in order to accomplish the research objectives. Methodology is a systematic, theoretical analysis of the methods applied to a field of study, or the theoretical analysis of the body of methods and principles associated with a branch of knowledge (Nirajini, A., & Priya, 2013). It includes the research design, the type of population and data used and the sampling design employed to collect the data, the methods to be analyze the data and the model specifications. Finally, the analysis of data is proposed to be done through descriptive statistics and regression models.

### 3.2. Research Design and Approach

A research design is provided the guidelines for gathering and analyzing data (Nirajini, A., & Priya, 2013). Research design is also the blue print for the collection, measurement and analysis of data. It can be seen as the logic or master plan of a research that highlights how the study is to be conducted(Nirajini, A., & Priya, 2013).the purpose of the research design is to ensure that suitable research methods are applied in the answering of the research questions. To achieve the objective of this study, Explanatory research design was adopted as noted by (Nirajini, A., & Priya, 2013) explanatory research design examines the cause and effect relationships between dependent and independent variables.

The study was examined on the effect of capital structure on the profitability of privet commercial banks in Ethiopia. It is an appropriate design; besides this, study was used quantitative research approach to examine a stated objective. The research design used in this study was a panel data of ten (10) privet commercial Banks for ten (10) years, which is the combination of cross-sectional and time series data (Nirajini, A., & Priya, 2013). The descriptive and quantitative statistics was conducted using STATA version 14. The study was characterized in analytical nature. In this study the researcher used facts and information already available and analyzed effect of capital structure on privet commercial Banks in Ethiopia.



### **3.3. Source of Data and Collection Methods**

There are primary and secondary data. Given the research design, secondary data was used to meet the objectives of the study. According to (Nirajini, A., & Priya, 2013) secondary data have its own advantages. Compared to primary data, secondary data gives higher quality data, the feasibility to conduct longitudinal studies and the permanence of data. That is, secondary data generally provide a source of data that is both permanent and available in a form that can be checked relatively easily by others and increases the dependability of the data, hence ensure data quality.

As a result, the data for the banks' capital structure and profitability indicator variables will be obtained from audited financial statements of the respective banks. Thus, the data were collected from audited annual reports of respected banks and National Bank of Ethiopia annual report. In order to avoid the risk of distortion in the quality of data, the data was from the audited financial statements particularly balance sheet and income statement.

The study included 10 private commercial banks for 10 years from 2010 G.C-2019G.C and used panel data for 100 observations.

### **3.4. Sampling Design**

The population of the study was all private commercial banks registered by National Bank of Ethiopia (NBE). Currently, as per NBE (2013/14) annual report the major financial institutions operating in Ethiopia are banks, insurance companies and micro-finance institutions. The numbers of banks operating in the country are **18**, of which **16** are private banks, and the remaining 2 are state-owned. From these 18 banks only 17 banks are Commercial Banks. This is excluding the Development Bank of Ethiopia which provides banking service to the selected government priority sectors.

In line with balanced panel data approach, to meet the desired objective of this study and to make generalization from sample to population, the researcher used maximum combination of years and number of banks and achieved the maximum number of observations through purposive sampling technique.

Thus, banks that operate less than ten years were excluded from the sample. Due to this, from 16 private commercial banks operating in the country this study takes sample of 10 banks namely, Bank of Abyssinia (BOA), Wegagen Bank (WB), United Bank (UB), Nib international Bank (NIB), Oromiya international Bank (OIB), Cooperative Bank of Oromiya (CBO), Buna international Bank (BIB), Lion international Bank (LIB), Awash International Bank (AIB) and Dashen bank for the period of 2010 G.C -2019G.C (in which audited financial statements were available). Excluded banks are Abay bank, Addis International bank, Debeb Global Bank, Enat Bank, zemen Bank and Brehan International Bank.

Besides, they have good experience in the banking operation and the sample taken also 62.5 % of the total population of 16 private commercial banks in the country. Hence, it is believed to make generalization from sample to population. In line with balanced panel data approach, to meet the desired objective of this study and to make generalization from sample to population, the researcher was used maximum combination of years and number of branches and achieves the maximum number of observations through purposive sampling technique.

### **3.5. Data Analysis Method**

To achieve the objectives of the study, panel data of 10 private commercial banks for 10 years (2010G.C to 2019 G.C) were used. This is because of that panel data has the advantage of giving more informative data as it consists of both the cross-sectional information, which captures individual variability, and the time-series information, that captures dynamic natures of the data. And hence it ensures more variability, more degrees of freedom, more efficiency, and less collinearity among variables (Nirajini, A., & Priya, 2013).

STATA version 14 Software was used to analyze the collected panel data. In the analysis of the descriptive statistics, the mean, standard deviation, maximum and minimum values are used to analyze the trends of the data.

Furthermore, diagnostic tests are managed in order to check the validity of the model based on the assumption of the Classical Linear Regression Model. Specifically, the assumption tests that was managed in this study include Heteroskedasticity Test, Autocorrelation Test, and test for Multicollinearity and Normality.

Finally, the Hausman specification test was used to choose the appropriate model for this study between the random effect (RE) and fixed effect (FE) model. Thus, based on the result of this test, the fixed effects model was found to be appropriate and applied for the study. Therefore, the multiple regression result of the fixed effect model was used to analyze the effect of capital structure on profitability of main business operation of private commercial banks and the relationship between the variables used in the study were examined.

### **3.6. Model Specification and Variables Description**

#### **3.6.1. Variables Description**

This study was used explanatory variables such as total debt to asset, Total Loan to Asset, total loan to deposit, spread, growth and size while the dependent variables were ROA and ROE. The variables descriptions are stated below.

##### **3.6.1.1. Dependent Variable**

Profitability was used as a dependent variable and it is measured by different mechanisms like Interest Margin, Return on Asset and Return on Equity. The fact that the profitability of selected private commercial banks would be directly and reasonably measured by either of ROA or ROE, this study examined profitability of these selected private commercial Banks using ROA and ROE as a dependent variable. Earlier studies also employed these as profitability measure. Some of them are (Hailu, 2016).

The formula used to calculate the ROA was;

$$ROA = \text{Net Income} / \text{Average Total Assets}$$

The formula used to calculate the ROE was;

$$ROE = \text{net income} / \text{total Equity}$$

##### **3.6.1.2. Independent Variables**

- **Total Debt to Asset (TDTA)**

The total debt to asset variable was used to represent the proportion of banks asset/operation financed by debt, hence was used as one measure of the capital structure of banks. (Goyal .A 2013) and (Hailu, 2016) found statistically significant negative relationship between profitability and leverage.

This is also consistent with the pecking order theory of capital structure. Hence taking into account the earlier empirical studies and the nature of financing structure of banking industry in Ethiopia, negative relationship with profitability was expected. For the purpose of this study it was calculated as:

$$TDTA = Totaldebt/Total Asset$$

H1: Total Debt to Asset has a significant relationship with capital structure and has an effect on profitability of these selected private commercial banks.

- **Total Loan to Deposit (TLD)**

The Total Loan to deposit (TLD) ratio serves as bank liquidity measure. It measures the funds that banks utilized into loans from the collected deposits in the period under study. It validates the association between loans and deposits.

Furthermore, as it is indicated in (Hailu, 2016), it provides a measure of income source and the liquidity of bank asset tied to loan. (Eltabakh, Ngamkroekjoti and Siad, 2014). Found statistically significant positive relationship between profitability and loan to deposit ratio. Since, the major source of interest income comes from loans and with reference to empirical studies, in this study it was expected to have positive relation with profitability of core business operation of banks.

Loan to deposit calculated as:

$$TLD = Total loan/Deposit$$

H3: Total Loan to deposit has significant relationship with capital structure and has an effect on profitability of these selected private commercial banks.

### **3.6.1.3. Control Variable**

A control variable, more or less works like an independent variable which enters the regression analysis to account for some factor. The control variable will differentiate the association between particular variables and to enhance the explanatory power of independent variables in the model. Most of the researchers was used these variables to account for some factors. Since the study was focuses mostly on commercial Banks to check how their capital structure differ

from each other. Therefore, It is used as a control variable size of the firms, (Khum-aloand, Olalekan and Okurut, 2011) and (Khum-aloand, Olalekan and Okurut, 2011)

- **Spread**

One of the expected benefits of financial liberalization and deepening of the financial sector is the narrowing of the interest rate spreads, i.e. the difference between the interest rate charged to borrowers and the rate paid to depositors. This is predicated on the understanding that liberalization enhances competition and efficiency in the financial sector.

The purpose of this variable in this study was to serve as control variable. (Khum-aloand, Olalekan and Okurut, 2011) used the definition of spread as the difference between income received on loans (divided by total loans) and interest paid on de-posits (divided by total deposits). The empirical studies of (Adetunji & Oladele, 2017) and (Adetunji & Oladele, 2017) revealed a positive relationship between spread and net interest margin or profitability. Due to the fact that the profitability of core operations of banks depends on interest income and expense and in line with empirical evidences, in this study a positive relationship between spread and profitability was expected.

The formula used to calculate was:

$$spread = (interestincome - interestpaid)/(loan\&advancedeposit$$

H4: Spread has significant relationship with profitability of these selected private commercial banks.

- **Growth**

Sales growth ratio is a value to measure firm's growth condition and development ability. Higher ratio is good for firm performance (Adetunji & Oladele, 2017). The firms have more growth opportunities that are show as higher rate of return; hence the firms generate more profit from their investments. Previous researches therefore show that growth is positively related to firm performance(Nirajini, A., & Priya, 2013).

Sales growth ratio=salesendof the year - sales beginning ofthe year/sales end of last year

OR

Sales Growth= Current Month Sales – Last Month Sales/lastmonth sales

H5: growth has significant relationship with profitability of these selected private commercial banks.

- **size of firms**

Size of the firms will indicate that the classification of the companies and how large the total asset is of the companies, this control variable may have an impact on financial performance. The larger companies are more capable to advantage from economies of scale leading to a better performance (Nirajini, A., & Priya, 2013). The study under,(Nirajini, A., & Priya, 2013) stated that firm size exhibit a positive relation with the performances of listed firms. Large firms are more diversified; more stable with stable capacity to payback debt therefore probability of bankruptcy is low(Gujarat, 2004).It obtained by the logarithm of total asset:

$$SIZE = \text{Log} (\text{total asset})$$

Thus, the hypothesis will be as follow:

H6: Asset size (capital) has significant relationship with profitability of these selected private commercial banks.

#### **3.6.1.4. Model Specification**

Multiple regression models are used to find out the association between capital structure and performance in manufacture firms. Two regression models were formulated to check the relationship between capital structure and performance. The models take the following form:

Financial Performance = f (Capital Structure)

The general formula used for the model is:

$$Y_i = \beta_0 + \beta_i X_i + \epsilon_i$$

Where:

$Y_i$  are the  $i^{\text{th}}$  observation of dependent variable

$\beta_0$  is the intercept of equation

$\beta_i$  are coefficients of  $X_i$  variables

$X_i$  are the different independent variables

t is Time from 1, 2...years

$\varepsilon_i$  is the error term When the above general model converted to each variable the following equation will be create as:

$$ROA_i = \beta_0 + \beta_1 TDTA_{it} + \beta_2 TLA_{it} + \beta_3 TLD_{it} + \beta_4 spread_{it} + \beta_5 Grow_{it} + \beta_6 capital_{it} + \varepsilon_{it} \dots 1$$

$$ROE_i = \beta_0 + \beta_1 TDTA_{it} + \beta_2 TLA_{it} + \beta_3 TLD_{it} + \beta_4 spread_{it} + \beta_5 Grow_{it} + \beta_6 capital_{it} + \varepsilon_{it} \dots 2$$

*Source: Researcher developed from based on previous empirical literature*

ROA it:	Return on asset of firm i in time t
ROE it:	Return on Equity of firm i in time t
TDTAit:	Total debt to total assets ratio of firm i in time t
TLAit:	Total loan to Asset of firm i in time t
TLD:	Total Loan to deposit ratio of firm i in time t
SPREAD:	Spread of firm I in time t
GROWTH:	Growth of firm I in time t
SIZE (capital):	Size of firm I in time t

**Table 2** Summary of variables, formula, and their expected relationship

Types of Variables	Name of variables	Formula	Expected sign.
Dependent	ROA	Net income/ average total asset	+
	ROE	Net income/total Equity	+
Independent	TDTA	Total debt/total asset	+
	TLA	Loan provided to client/total Asset	+
	TLD	Total loan/total deposit	+
Control	Spread	Interest income-interest expense/loan and advance deposit	+
	Size	Log(total asset)	+



## CHAPTER FOUR

### **4. Data Analyses and Interpretation**

Under the above chapter the research method applied to meet the objective of the study is presented. This chapter presents the results and analysis of the findings as well as discussion of results. The chapter is organized in to three sections. Section 4.1 presents summary of statistics. Then Section 4.2 and 4.3 presents the Classical Linear Regression Model assumptions tests and results of regression analysis respectively.

#### **4.1. Summary of Statistics**

Under this section of descriptive statistics the quantitative data present about the dependent and Independent variable and also control variable by using descriptive statistics. In this study a sample of 10 private commercial banks for 10 year (2010 G.C– 2019 G.C) were considered. Data is collected from audited financial statements of respective banks and National Bank of Ethiopia reports.

In this study ROA and ROE are used as profitability measure and it is considered as dependent variable. Also, the Total Debt to Asset (TDTA) and total Loan to Deposit (TLD), was used as independent variables; Spread and size (capital) were used as control variables.

## 4.2. Descriptive analyses of Dependent, Independent and Control Variables

Table 3: descriptive statistics of dependent and Independent variable and also control variable

Variable	Obs	Mean	Std. Dev.	Min	Max
id	100	5.5	2.886751	1	10
year	100	2014.5	2.886751	2010	2019
roa	100	.0465104	.010092	.014	.0672271
roe	100	.304299	.1862435	-.07866	.896027
tdta	100	.851893	.0410578	.651953	.920946
tld	100	.4583404	.0593883	.3206829	.5728499
spread	100	.0418967	.0188804	.001717	.089999
capitalsize	100	6.782555	.8887776	4.682131	8.238246

*Source: Financial statements of sample banks and own computation*

### 4.2.1. Descriptive Analysis of Dependent Variable

As it is presented in the above table, it includes the mean, standard deviation, number of observations, minimum and maximum for the dependent and independent variables of the model. It shows the average indicators of variables computed from the financial statements

As shown in chapter three, profitability of commercial banks was measured by return on asset (ROA) and return on equity (ROE) which in turn calculated as net interest income divided by interest earning assets and equities. The mean of return on Asset and return on Equity was 0.046 and 0.304 respectively. On the other hand standard deviation of return on asset and return on equity are 0.010092 and 0.1862435 respectively. This means private commercial banks in Ethiopia, under the period of study, earned on average 0.046 and 0.304 return on Asset and Return on Equity from their investment. The highest ROA and ROE for Banks in a particular year was 0.0672271 and 0.896027 respectively in the same way the minimum ratio for a bank in a year was 0.014 and -0.07866. Regarding the standard deviation, it means that the value of

net interest margin (return) can deviate from its mean to both sides by 0.010092 and 0.1862435 respectively.

#### **4.2.2.Descriptive Analysis of independent Variable**

The leverage/ capital structure was represented by debt ratio (total debt divided by total asset), and total loan to deposit ratio also used as measure of capital structure of banks to examine the effect of deposit and non-deposit liability on profitability of banks. The mean of debt to Asset ratio of the sampled banks in the study period was 85%. It reveals that debt represents nearly 85% of the capital of private commercial banks in Ethiopia. The highest debt ratio for a bank in a particular year was 92% and in the same way the minimum ratio for a bank in a year was 65.2%. The value of debt to asset ratio can deviate from its mean to both sides by 4%. From the summary of statistics it was observed that 85% of the total capital of commercial banks in Ethiopia in the period under study was made up of debt. Of this, 65.2% constitute deposit and the remaining was non-deposit liabilities. This has reaffirmed the fact that banks are highly levered institutions

Furthermore, the total loan to deposit ratio was used as a proxy for bank liquidity tide to loan. The mean of total loan to deposit ratio of the sample banks in the study period was 0.45. It reveals that loan represents on average nearly 0.45% of deposit of commercial banks in Ethiopia. The highest loan to deposit ratio for a bank in a particular year was 57% and this reveals that banks loan advances to customers from deposit and non-deposit sources of finance. In the same way the minimum ratio for a bank in a year was 32%. The value of loan to deposit ratio can deviate from its mean to both sides by 5.9%

Likewise, the mean of the firms' size (capital) which was represented by the book value of total assets was Birr 72,825.55 (in million) with a standard deviation of Birr 10,156.28 (in million). Total assets for the sample banks in the study period were ranged from Birr 46,821.31 (in million) to Birr 92,017.7 (in million).

Besides, summary of test statistic shows that the mean of spread was 4% with the standard deviation of 2%. Moreover, the study sample spread was ranged in between 0.02% to 10%.

#### **4.3. Tests for the Classical Linear Regression Model (CLRM) Assumptions**

When the econometric model is reliable and valid should be satisfy the basic classical linear regression model. The assumptions underlying in CLRM that are the average values of the

error term is zero, the variance of the errors are constant (homoscedastic), the covariance between the error-terms are zero (no autocorrelation), the error-terms are normally distributed (normality) and explanatory variables are not correlated (absence of Multicollinearity).

**4.3.1. Testing for the Average value of the error-term is zero**

This CLRM assumption requires, the average value of the errors term should be zero. According to (Brooks, 2008) if a constant term is included in the regression equation, this assumption will never be violated. Therefore, since the constant term i.e. was included in the regression equation, the average value of the error term in this study is expected to be zero.

**4.3.2. Test of Normality**

The most fundamental assumption in data analysis is normality, which considers the benchmark for statistical methods. Normality refers to the shape of data distribution for an individual metric variable. Normality is tested using graphical and statistical tests. In this study the researcher used statistical tests to testing the normality of data. The assumption of the statistical tests for normality test is the P-value is more than 0.05 indicates that the distribution is normal. The normality assumption also is tested by using the Shapiro-Wilk test and skness/kurtosis test for normality. According to (Salim and Yada, 2012) Shapiro wilk test for normal distribution is appropriate for small samples from  $4 \leq n \leq 2000$ . In this study the researcher used as Shapiro wilk test to testing the normality of data the P-value is greater than 0.05. So, based on the statically value the data is normal.

Table 4: Shapiro-wilk w test for normal data for ROA

Shapiro-Wilk W test for normal data					
Variable	Obs	W	V	z	Prob>z
roa	100	0.97485	2.077	1.621	0.05247

Table 5: Shapiro-wilk w test for normal data for ROE

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
roe	100	0.98394	1.326	0.627	0.26547

Source: STATA 14.0 output for testing normality data

### 4.3.3. Heteroskedasticity Test

According to (Salim and Yada, 2012) the variance of the error term is constant in regression results. There are several tests to detect the Heteroscedasticity problem, which are Park Test, Glesjer Test, Breusch-pagan/cook-wiesbergtest, and White's test and Autoregressive Conditional Heteroscedasticity test. This study used Breusch-pagan/cook-wiesberg test to detect the presence of Heteroscedasticity. The Breusch-pagan/cook-wiesberg test for heteroscedasticity reveals the p-value is Prob > chi2 = 0.1726, which exceeds 0.05. This p-value indicates that the null hypothesis of constant variance should not be rejected. In other words, it indicates there is no heteroskedasticity problem or there is constant variance in the models.

Table 6: test of Heteroskedasticity problem for ROA

```
chi2(1)      =      1.86
Prob > chi2  =      0.1726
```

Source: STATA 14.0 output for testing heteroskedasticity problem

Table 7: test of Heteroskedasticity problem for ROE

```
chi2(1)      =      0.11
Prob > chi2  =      0.7382
```

Source: STATA 14.0 output for testing heteroskedasticity problem

**4.3.4. Autocorrelation assumption (cov (ui ,uj ) = 0 for i \_= j)**

Assumption three of the CLRM requires absence of autocorrelation or the covariance between the error terms is zero. In other words, it is assumed that the errors are uncorrelated with one another. When test for autocorrelation by using Durbin and Watson (1951). Durbin—Watson (DW) is a test for first order autocorrelation that is tests only for a relationship between an error and its immediately previous value. DW is approximately equals to  $2(1 - \hat{\rho})$ , where  $\hat{\rho}$  is the estimated correlation coefficient between the error term and its first order lag (Salim and Yada, 2012). The null hypothesis for the DW test is no autocorrelation between the error term and its lag. According to(Salim and Yada, 2012) DW has 2 critical values: an upper critical value (dU) and a lower critical value (dL), and there is also an intermediate region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected.

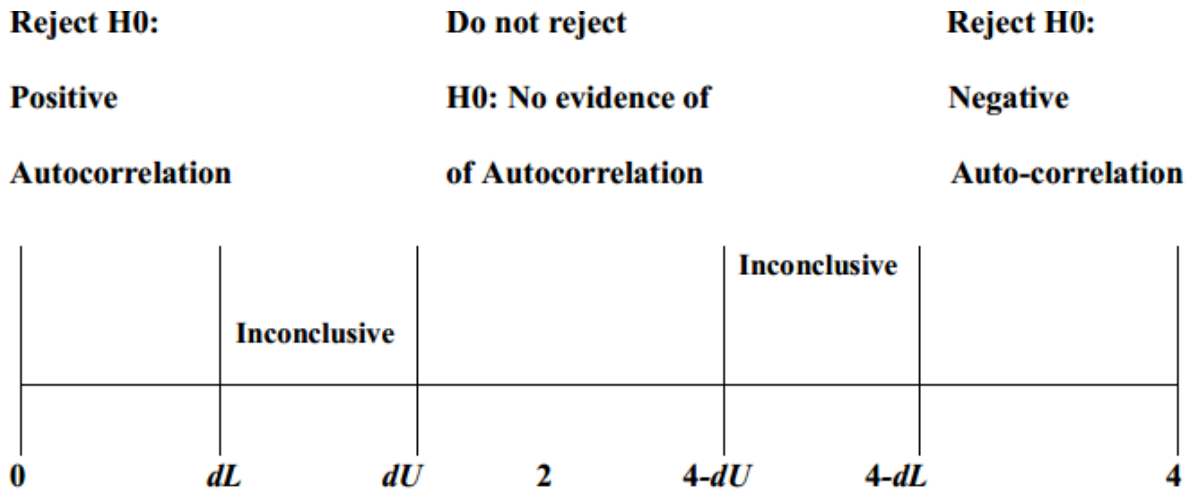


Figure 2:Autocorrelation assumption

The study used the dL and dU values for 100 observations as approximation used in table 100 observations. As per the DW table in the appendix for 100 observations with explanatory variables at 1% level of significance, the dL and dU values are 1.357. The DW values for ROA for100 observations were 1.853. The DW value of ROE lies in the inconclusive region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected. So, the Durbin Watson tests in model one shows inconclusive and none rejection region i.e the absence of autocorrelation problem in the model.

### 4.3.5. Testing for Multicollinearity

Variance inflation factor VIF is most widely used method to test a multicollinearity problem in the model, which is a measure increasing in the variance of a coefficient as result of collinearity of problem. The researcher measured multicollinearity problem among variables by Variance Inflation Factor (VIF). According to (Salim and Yada, 2012) the calculated value of the VIF of each variable is less than ten and; 1/VIF exceeds 0.1 that implies a multicollinerity is not a serious problem. In this study also the VIF indicated in table 5. The variance inflation factor is less than 5 and the 1/VIF; is possibly exceeds 0.1. Based on the STATA result there is no multicollinerity problem between variables in the model.

Table 8: Variance Inflation factor

Variable	VIF	1/VIF
year	4.64	0.215399
capitalsize	3.70	0.270362
tld	2.00	0.500214
roa	1.73	0.577409
tdta	1.62	0.618156
spread	1.60	0.623385
roe	1.26	0.791104
Mean VIF	2.37	

Source: STATA14.0 Output VIF for Multicollinearity

Multicollinearity is an assumption of a linear relationship between explanatory variables that creates biased regression model. This problem occurs when the explanatory variables are very highly correlated with each other. Accordingly a Multicollinearity problem exists when the correlation coefficient among the variables is greater than 0.90.

However, suggested that any correlation coefficient above 0.70 could be cause a serious Multicollinearity problems it appears in the correlation matrix in the below tables all the modes are less than the stated value (Salim and Yada, 2012). The results in the following correlation

matrix show that the highest correlation of 0.8059 existed between TLD and TLA of the firms followed by correlation coefficient of -0.1850 which is existed between TLD and TDTA.

Table 9:correlation matrix

	id	year	tdta	tld	spread	capitalsize
id	1.0000					
year	0.0000	1.0000				
tdta	-0.3561	0.3858	1.0000			
tld	-0.1899	0.6406	0.2409	1.0000		
spread	-0.3222	0.4551	0.3590	0.5226	1.0000	
capitalsize	-0.4765	0.8104	0.3978	0.5963	0.5286	1.0000

Source: STATA 14.0 output results and author's computation

#### 4.4. Choosing Random effect (RE) versus fixed effect (FE) models

In financial research there are two classes of panel estimator approaches that are fixed effect and random effect models. The appropriate test used to decide whether a fixed effect or random effect model is Hausman Specification Test. Hence, Hausman Specification Test identifies whether fixed-effect or random-effect model is most appropriate under the null hypothesis that unobservable individual effects ( $u_i$ ) are uncorrelated with one or more of explanatory variables ( $X_i$ ).

According to (Salim and Yada, 2012) fixed effect model is most appropriate when null hypothesis is rejected whereas random effect is appropriate when null hypothesis is not rejected. For Hausman test, the null and alternative hypotheses are as follows:

Ho:  $u_i$  not correlated with  $X_i$  (random - effects model appropriate)

H1:  $u_i$  correlated with  $X_i$  (fixed-effects model appropriate)

When testing the null hypothesis, it requires comparing the estimates from the random-effects and the fixed-effects estimator. Random-effect estimator is consistent under the null hypothesis, but inconsistent under the alternative hypothesis whereas fixed-effect estimator is consistent



under both the null and alternative hypothesis. If the estimates for the random-effects estimators are not significantly different from the estimates for the fixed-effects estimator, then the null hypotheses is accepted and conclude that  $ui$  is correlated with  $X_i$ , and so, the fixed-effect model is the appropriate model for this study.

Table 10: Test for appropriate model (Hausman test) for ROA

	Coefficients		(b-B) Difference	sqrt (diag (V_b-V_B)) S.E.
	(b) fe	(B) re		
tdta	.0907737	.0313641	.0594096	.
tla	.0728019	.1218941	-.0490922	.
tld	-.0002142	-.0004363	.0002221	.
spread	-.1433548	-.0273235	-.1160313	.0386867
growth	.0026637	.0130697	-.010406	.
capitalsize	.0074208	.003615	.0038057	.0006833

b = consistent under  $H_0$  and  $H_a$ ; obtained from xtreg  
 B = inconsistent under  $H_a$ , efficient under  $H_0$ ; obtained from xtreg

Test:  $H_0$ : difference in coefficients not systematic

chi2 (6) = (b-B)' [(V\_b-V\_B)^(-1)] (b-B)  
 = 50.40  
 Prob>chi2 = 0.0000  
 (V\_b-V\_B is not positive definite)

Source: STATA 14.0 output (Hausman test) for ROA

Table 11: Test for appropriate model (Hausman test) for ROE

	—— Coefficients ——			
	(b) fe	(B) re	(b-B) Difference	sqrt (diag (V_b-V_B)) S.E.
tdta	-20.12111	17.25806	-37.37916	18.38982
tla	-79.61239	-100.7134	21.10102	9.051666
tld	.4276665	.5113339	-.0836674	.
spread	-.3663354	60.81089	-61.17722	56.23607
growth	1.896837	-8.396274	10.29311	1.425051
capitalsize	.146545	1.339561	-1.193016	1.138632

b = consistent under Ho and Ha; obtained from xtreg  
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

```

chi2(6) = (b-B)' [(V_b-V_B)^(-1)] (b-B)
          =      47.59
Prob>chi2 =      0.0000
(V_b-V_B is not positive definite)

```

Source: STATA 14.0 output (Hausman test) for ROE

#### 4.5. Model specification Test

The assumption of the classical linear regression model that is an econometric model used in the analysis should be correctly specific in the study. The assumption primarily identifies no equation specification errors or no model specification errors. The equation specification error is due to the omission of an important variable(s), the inclusion of unnecessary variable(s), adoption of the wrong functional form, incorrect specification of the error term, and errors of measurement in the dependent and independent variables (Salim and Yada, 2012).

#### 4.6. Correlation matrix Analysis

The correlation and covariance between selected variables is also being formulated in order to get a better understanding of the sample. Correlation matrix summarizes the relationships among variables and also this serves two important purposes. First, to determine whether there is any bivariate relationship between each pair of dependent and independent variables.

Second, to ensure whether there is any statistically significant relationship exists between two variables. So, the correlation matrix was demonstrated the direction of the relationship and the significance of relationship between variables.

According to (Salim and Yada, 2012) Correlation between two variables measures the degree of linear association between them. Values of the correlation coefficient are always ranged between positive one and negative one. A correlation coefficient of positive one indicates that a perfect positive association between the two variables; while a correlation coefficient of negative one indicates that a perfect negative association between the two variables. A correlation coefficient of zero, on the other hand, indicates that there is no linear relationship between the two variables. The table 9 below shows the correlation matrix among dependent, independent and control variables.

The correlations between variables are shows us TDTA, TLD, SPREAD AND CAPITAL have positive effect on ROA. At the same time TLD, SPREAD AND CAPITAL/SIZE/ have positive effect on ROE on other hand, TDTA, TLA AND GROWTH have negative effect on profitability measure of ROE.

Table 12:Correlation matrix dependent, independent and control variable

	id	year	roa	roe	tdta	tld	spread	capital-size
id	1.0000							
year	0.0000	1.0000						
roa	-0.0442	0.4760	1.0000					
roe	0.3141	0.3046	0.0640	1.0000				
tdta	-0.3561	0.3858	-0.1637	0.0023	1.0000			
tld	-0.1899	0.6406	0.2447	0.0984	0.2409	1.0000		
spread	-0.3222	0.4551	0.1377	0.0220	0.3590	0.5226	1.0000	
capital-size	-0.4765	0.8104	0.4535	0.0699	0.3978	0.5963	0.5286	1.0000

Source: STATA 14.0 output Correlation matrix dependent, independent and control variables

#### **4.7. Regression result analysis**

Regression analysis is a statistical technique used to test the relationship between one dependent variable and one or several independent and control variables. This study examines the effect of Capital structure on profitability of private commercial Banks in Ethiopia. The sample of this study contains ten private commercial Banks in Ethiopia, which have a minimum of ten consecutive year's financial statement data for the period interval between the years 2010 – 2019. Data was used. In investigating the Capital structure of private commercial Banks in Ethiopia, the researcher used a regression analysis to test the effect of Independent variable TDTA, and TLD the control variable also used spread, and size on the dependent variable measured by ROA and ROE.

So, in this study the researcher used multiple regression analysis, which is examining more independent variables effect on the variation on the dependent variable. In relation to this, the study also examined whether the independent variables have a positive or negative effect on the dependent variable. In this study, the tests of Hausman Specification test accept the fixed effect model rather than random effects model in the study. Furthermore, the regression tests showed in the below (tables 10) to discuss the relationship between dependent with Independent and control Variables

Table 13:the relation between ROA with independent variable and control variable

```

Fixed-effects (within) regression      Number of obs   =      100
Group variable: id                   Number of groups =      10

R-sq:                                Obs per group:
    within = 0.4730                    min =      10
    between = 0.1796                   avg  =     10.0
    overall = 0.3480                   max  =      10

corr(u_i, Xb) = -0.4373                F(4,86)         =     19.29
                                           Prob > F        =     0.0000
    
```

roa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
tdta	-.1414289	.0265707	-5.32	0.000	-.1942497	-.0886081
tld	-.0128112	.0193985	-0.66	0.511	-.0513742	.0257517
spread	-.0240811	.0755212	-0.32	0.751	-.1742123	.1260501
capitalsize	.0103531	.0016013	6.47	0.000	.0071698	.0135364
_cons	.1036529	.0204995	5.06	0.000	.0629012	.1444046
sigma_u	.00553767					
sigma_e	.00710532					
rho	.37788406	(fraction of variance due to u_i)				

F test that all u\_i=0: F(9, 86) = 4.89 Prob > F = 0.0000

Source: STATA 14.0 output the relation between ROA with independent variable and controlvariable

Based on the descriptive statistical result the study discussions the above table as follow: The above Table 10 shows that the overall R square (coefficient of determination) is 0.4730 which means that 47.3% variability in Return on Asset (dependent variable) is due to the capital structure and control variables. It also demonstrates that remaining 52.7% variation is due to the other factors. From the table 10 shows value of p=0.0000 which means that (p<0.05).The result of p-value shows that capital structure and control variable as a whole has relatively high significant effect on the ROA in privet commercial Banks in Ethiopia.

The table presents that the results of fixed effect regression coefficient and significance of each independent variable separately. Regression coefficient determines that either each measure of capital structure has positive or negative impact on the ROA.

### **The relationship between ROA and TDTA**

Beta coefficient of Total Debt to Asset ratio is -0.1414289 and value of  $p=0.000$  ( $p<0.05$ ) which means that TDTA has negative and significant effect on ROA. This implies that a unit increase in TDTA will result into 0.00 unit increase in ROA of private commercial banks in Ethiopia.

(Suleiman M. Abbadi, 2016) found in his research total loan to deposit (TLD) and also Total loan to Asset (TLA) have insignificant relationship with ROA. On the other hand (Hailu, 2016) found that the Total debt to Asset (TDTA) is also insignificant. Therefore, the hypothesis Total Debt to Asset has a significant relationship with capital structure and has an effect on profitability of these selected private commercial banks is accepted.

### **The relationship between ROA and TLD**

From table 10, the coefficients of TLD is -0.0128112 with a P-Value of  $0.511 > 0.05$ . This implies that a unit increase in TLD will result into -0.0128112 unit decrease in ROA of private commercial banks in Ethiopia.

According to (Salim and Yada, 2012) and (Amanuel, 2011), the findings for the positive relation between TLD and firms profitability in the Banking industry is in line with the trade-off theory. This is due to the fact that firms can benefit from leverage by taking advantage of the tax shield since interest expenses reduce the taxable income (Graham, 2003). That creates tax savings that positively affects firms' performance suggesting that companies use a short term debt to finance their operation activities. On the other hand, the studies conducted by (Opoku, Adu and Anarfi, 2013a), (Opoku, Adu and Anarfi, 2013a), are contradicted to this finding which concludes they conclude that a short term debt has a negative impact on financial performance. Therefore, the hypothesis, stating that Total Loan to Deposit has significant relationship with capital structure and has an effect on profitability of these selected banks is accepted.

### **The relationship between ROA and size of the firm (capital)**

The result presented in table 10, a beta coefficient and p-value of firm's size is 0.0103531 and 0.000 respectively. This implies that, holding other independent variables constant at the average value, when private commercial Banks size increased by one unit, ROA would be increased by 0.0103531 unit however the result statistically significant at 5% of significance level. This indicates that profitability of large private commercial banks is better than small size private commercial banks. Performance of the firms is likely to increase in size, because large private

commercial banks normally have greater capacity for dealing with adverse market fluctuations than small private commercial banks and have more economies of scale in terms of cost, which is the most significant factor for product producing capacity, complex information systems and a better expenses management.

The previous studies also support the study conducted by (Opoku, Adu and Anarfi, 2013)(Opoku, Adu and Anarfi, 2013)(Opoku, Adu and Anarfi, 2013)(Opoku, Adu and Anarfi, 2013), they conclude that firm size is a significant positive relationship between firm size and financial performance. The positive result of firms' size may be large size financial firms can enjoy economies of scales and generate more return. The positive impact of firm size on firm performance is in line with previous researchers that state the larger firms have higher profitability and firm's performance. In other hand the finding of the study is not line with previous studies conducted by (Opoku, Adu and Anarfi, 2013), (Onaolapo. and Kajola, 2010). Therefore the, this study supports the hypothesis that firm size has positive effect on private commercial banks in Ethiopia is fail to accept because expected sign also same to the study.

Table 14: relationship between independent and control variable with ROE

```

Fixed-effects (within) regression      Number of obs   =      100
Group variable: id                    Number of groups =       10

R-sq:                                  Obs per group:
    within = 0.0803                     min =          10
    between = 0.3806                    avg =         10.0
    overall = 0.0033                    max =          10

corr(u_i, Xb) = -0.4942                  F(4,86)         =        1.88
                                          Prob > F        =        0.1216
    
```

roe	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
tdta	.3080212	.6568225	0.47	0.640	-.9976988	1.613741
tld	-.1267584	.4795274	-0.26	0.792	-1.080027	.8265105
spread	-1.479203	1.866869	-0.79	0.430	-5.190416	2.232011
capitalsize	.0774328	.0395842	1.96	0.054	-.0012581	.1561237
_cons	-.3632221	.5067443	-0.72	0.475	-1.370597	.6441523
sigma_u	.10636491					
sigma_e	.17564214					
rho	.26832336	(fraction of variance due to u_i)				

F test that all u\_i=0: F(9, 86) = 2.66 Prob > F = 0.0089

Source: STAT 14.0 output the relation between ROE with independent variable and control variable

### The relationship between return on equity and total debt to asset

The fixed effect regression result in above table 14, the coefficient and p-value of total debt to total asset ratio is 0.308 and 0.64 respectively. This implies holding other explanatory variable a total debt to total asset ratio increased by one unit, return on Equity would be increased by 0.308 units and statistically significant at 5% of significance level.

Hence, a total debt to total asset ratio is a positive and statistically insignificant relationship between Return on equity. This also implies that a one unit increase in total debt to asset ratio, the ROE decreased by 0.308 units. The results of regression in the table show that there is a statistically insignificant positive relationship between profitability and total debt to total asset ratio of privet commercial Banks in Ethiopia.

The study also supported by Trade-off Theory, which is defined by Miller (1977) this presented as the firms can only earn high profits if their leverage is at optimal level. It is very difficult to



choose optimum leverage level so there are always chances of errors while making choice between debt financing and equity financing. Total debt over total assets has positive impact over return on Equity. This also supported by (Opoku, Adu and Anarfi, 2013a) and (Opoku, Adu and Anarfi, 2013a).

Therefore, the hypothesis presented that Total Debt to Asset has a significant relationship with capital structure and has an effect on profitability of these selected banks is rejected because the result shows us Total Debt to Asset has insignificant relationship with capital structure and has an effect on profitability of these selected banks.

➤ **The relationship between return on Equity and firm Size**

The fixed effect estimation result in above table with a regression coefficient and P value 0.0774328 and 0.054 respectively. Hence the regression value reveals that insignificant positive relationship between firm's size and profitability (ROE) of sampled private commercial Banks in Ethiopia. In the study, a positive relationship between firm's size and profitability supported by trade-off theory that means a firm size has greater diversification, economics of scale production, greater access to new technology and cheaper sources of funds.

This result of the finding consistent with previous studies conducted by (Zeitun and Tian, 2007), In addition the finding is agree with (Nirajini, A., & Priya, 2013) who is found as a weak relation between firm size and ROE by empirically examining the impact of capital structure choice on the performance of firms in Egypt. In other side the study result not line with the pervious study conducted by (Nirajini, A., & Priya, 2013). Therefore, the hypothesis present that firm size has positive effect on profitability of private commercial banks in Ethiopia is accepted.

# CHAPTER FIVE

## 5. Summary, Conclusion and Recommendation.

### 5.1. Introduction

The objective of the study was to examine the Effect of capital structure on profitability of private commercial banks in Ethiopia. This Chapter presents the summary of findings, conclusions, recommendations based on the main findings, and suggestion for further study areas which may require further consideration as far as future research is concerned.

### 5.2. Summary of the findings

The study was on the Effect of capital structure on profitability of private commercial banks in Ethiopia. The theoretical literature on capital structures, specifically the Modigliani-Miller theorem, pecking order theory, agency cost theory, market timing theory, and some other theories have been reviewed to provide an acceptable understanding of how the use of debt in capital structure can affect a firm's profitability. A wide-range of related empirical literature has been reviewed to identify the proxies and measurements for capital structure, profitability and different control variables. In the study a profitability measures named as ROA and ROE. On other hand, the capital structure measurements also used as total debt to asset, Total Loan to asset, Total loan to deposit. In the study also a control variable used those are spread, growth and size of the firm (capital), and have an influence on firm's profitability.

The study was used a sample of ten private commercial Banks in Ethiopia from the period of 2010-2019 G.C. In the study also data is tested to ensure the validity of the classical linear regression model (CLRM) assumptions by using normality, multicollinearity, heteroskedasticity and autocorrelation tests. Then panel data was analyzed and interpreted; in descriptive and quantitative way; in the study. The results of the study employed by balanced panel regression model and using fixed effect regression analysis. The research used financial statement which was obtained from audited financial statement of private commercial Banks in Ethiopia.

In the study also various analytical methods were employed those methods included correlation, descriptive statistics, regression analysis by using STATA 14 package.

### **5.3. Conclusion**

The objective of the study was to examine the effect of capital structure on private commercial Banks profitability. The regression results show that total debt to asset ratio is statistically significant and negative measured by ROA and statistically insignificant and positive as measured by ROE of a sample of private commercial Banks in Ethiopia.

It indicates that as level total debt to asset in the capital structure increases, the profitability of private commercial banks will increase in the case of ROE and decrease in the case of ROA. So, total debt to asset is one of among capital structure variables that affect profitability of private commercial Banks in Ethiopia. On the other hand, in the study results show in fixed effect model total loan to deposit is statistically insignificant and negative measured by Both ROA and ROE a sample of private commercial Banks in Ethiopia in the study period. It indicates that as level of TLD in the capital structure increases, the profitability of private commercial Banks in Ethiopia will decrease.

The effect of spread is negative and insignificant impact on sample of private commercial Banks in Ethiopia measured by ROA and ROE. Hence, the private commercial Banks in Ethiopia have significantly high spread prospects while they also have a negative correlation with profitability of the firms. The study found that size is statistically positive for both ROA and ROE and also significant association for both ROA and ROE between size and profitability of private commercial Banks in Ethiopia.

### **5.4. Recommendations**

Based on the empirical findings, the researcher made a number of recommendations as follows:

- An optimal capital structure is the debt-equity mix that best maximizes firms' value. So it is better if the firms optimize their capital structure by an appropriate mix of debt-equity capital. It is better if firms strike a balance between their choice of capital structure and the effect on its profitability, as it affects the shareholders risks, returns and cost of capital. The study recommended that the firm must consider using an optimal capital structure. The optimal capital structure includes some debt, but not 100% debt. Furthermore the relevant authority should take proper steps and decisions whether it would be optimal, target or proportional capital structure pattern in order to maximize the value of the firm and that should be the ultimate goal for any type of business organization.

- The Total debt To Asset ratio has significant and negative effect on profitability of private commercial Banks for ROA and insignificant and positive for ROE. So, it is better if firms' use of debt is decreased in their capital structure carefully.
- According to the study TLD is insignificant in the case of relationship between TLD and ROA and ROE. It implies that increase in total loan will decrease return insignificantly; therefore for these selected private commercial Banks can use loan to increase their return carefully.
- The study found that firm size has a positive relationship with profitability of private commercial Banks. The study recommends that managers of the sector should focus on growing their firms to ensure that they enjoy the economies of scale associated with large firms, also to attract good management thus to improve their profitability. They should have higher market share than their competitors through penetration to have a competitive advantage.
- Finally, the government should create an enabling business friendly environment so that businesses can thrive and thus increase banks profitability. Policy makers' should reduce costs associated with their operations, so as to make it attractive and also enhance the profit base and survival of business entities. This is evident in the fact that macroeconomic variables positively affect the profitability of the bank. This would enable banks to build more internal capital in form of retained earnings and reserves that, foster their levels of financial soundness. In general the study recommended that private commercial Banks use suitable portion of debt to funding resources.

### **5.5. Suggestions for Further Research**

Capital structure is a useful tool for growth and expansion and the overall financial performance of any firm. Further research can be undertaken considering large, sample size, variable, study area and time period so as to produce more reliable results. In addition to the data represent for the period of ten years were used for the study. The scope of this study covers the operations of only a sample of private commercial Banks which is found in Ethiopia for a period of ten years only. Giving enough time and resources it is possible to attempt to study by including some commercial Banks found in Ethiopia including public Banks and Development banks which are not included under this study for longer period of time and using different statistical methods in order to have a more comprehensive result. In addition to this, for a future researcher who

conduct research on the same topic by including other variables which was not included under this study.

The analyses and findings in this study show that there are other factors than the independent variables used for this study that affects profitability of the Banks. Finally, the findings of this study imply areas that need further study.

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# Appendix

This is a **list of banks in Ethiopia.**

	<b>Bank Name</b>	<b>Web Site</b>	<b>Year Est.</b>	<b>No of Branches</b>	<b>SWIFT</b>	<b>Gross Profit (ETB million)</b>	<b>Net Profit (ETB millions)</b>
1	Abay Bank S.C.	<a href="http://www.abaybank.com.et/">http://www.abaybank.com.et/</a>	2010	159 <sup>[2]</sup>	ABAYETAA	190.00 <sup>[3]</sup>	
2	Addis International Bank	<a href="http://www.addisbanksc.com/">http://www.addisbanksc.com/</a>	2011	64 <sup>[4]</sup>	ABSCETAA	205.16 <sup>[5]</sup>	159.30
3	Awash International Bank	<a href="http://www.awashbank.com/">http://www.awashbank.com/</a>	1994	430 <sup>[6]</sup>	AWINETAA	1,381.00 <sup>[7]</sup>	
4	Bank of Abyssinia	<a href="http://www.bankofabyssinia.com/">http://www.bankofabyssinia.com/</a>	1996	233 <sup>[8]</sup>	ABYSETAA	534.00 <sup>[9]</sup>	
5	Berhan International Bank	<a href="http://berhanbanksc.com/">http://berhanbanksc.com/</a>	2010	46	BERHETAA	131.00	
6	Bunna International Bank	<a href="http://www.bunnabanksc.com/">http://www.bunnabanksc.com/</a>	2009	205 <sup>[10]</sup>	BUNAETAA	625.00 <sup>[11]</sup>	461.00 <sup>[12]</sup>
7	Commercial Bank of Ethiopia (St	<a href="https://web.archive.org/web/20180822065616/http://">https://web.archive.org/web/20180822065616/http:</a>	1963	1444 <sup>[13]</sup>	CBETETAA	17,900.00	

	<b>Bank Name</b>	<b>Web Site</b>	<b>Year Est.</b>	<b>No of Branches</b>	<b>SWIFT</b>	<b>Gross Profit (ETB million)</b>	<b>Net Profit (ETB millions)</b>
	ate Bank)	//www.combanketh.et/					
8	Cooperative Bank of Oromia(s.c.)	http://www.coopbankoromia.com.et/	2005	190	CBORETAA <sup>[14]</sup>	485.00	
9	Dashen Bank	http://www.dashenbanksc.com	2003	146 <sup>[15]</sup>	DASHETAA	928.00	
10	Debub Global Bank	http://www.debubglobalbank.com/	2012	32	DEGAETAA	19.00	
18	Development Bank of Ethiopia	http://www.dbe.com.et//	1901	32	DBEETAA	300.00	
11	Enat Bank	http://www.enatbanksc.com/	2013	7	ENATETAA	39.00	
12	Lion International Bank	http://www.anbesabank.com/	2006	235	LIBSETAA	480.33	
13	Nib International Bank	http://www.nibbank-et.com/index.php	1999	98	NIBIETTA	420.80	

	<b>Bank Name</b>	<b>Web Site</b>	<b>Year Est.</b>	<b>No of Branches</b>	<b>SWIFT</b>	<b>Gross Profit (ETB million)</b>	<b>Net Profit (ETB millions)</b>
14	Oromia International Bank	<a href="http://www.oroointbank.com/">http://www.oroointbank.com/</a>	2008	115	ORIRETAA	205.40	
	Total			2357		14,425.00	
15	United Bank	<a href="http://www.unitedbank.com.et/">http://www.unitedbank.com.et/</a>	1998	108 <sup>[16]</sup>	UNTDETAA	350.00	
16	Wegagen Bank	<a href="http://www.wegagenbank.sc.com/">http://www.wegagenbank.sc.com/</a>	1997	211 <sup>[17]</sup>	WEGAETAA	478.00	
17	Zemen Bank	<a href="http://www.zemenbank.com/">http://www.zemenbank.com/</a>	2010	1	ZEMEETAA	131.00	