ST.MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DETERMINANTS OF CAPITAL STRUCTURE: EMPIRICAL EVIDENCE FROM COMMERCIAL BANKS IN ETHIOPIA.

BY

YOHANNES ESTIFANOS

June, 2017

ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ACCOUNTING AND FINANCE.

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APPROVED BY BOARD OF EXAMINERS

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Contents

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Determinants of Capital Structure: Empirical evidence from commercial banks in Ethiopia. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Name	**Signature**
St. Mary's University, Addis Ababa	**June, 2017**

ENDORSEMENT

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

Advisor	**Signature**
St. Mary's University, Addis Ababa	**June, 2017**

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DEDICATION

This work is dedicated to my mother, w/ro Assegedech Besufekade.

Abstract

Determinants of capital structure: Empirical evidence from commercial banks in Ethiopia.

This study examine the impact of independent variable which are profitability, growth of bank, size of banks, dividend payout, asset tangibility, liquidity, net debt tax shield, risk, GDP, and inflation on the formation of capital structure of commercial banks in Ethiopia. The sample in this study includes fourteen commercial banks operate during the study period. The panel data cover for six years from 2011 to 2016. The study used quantitative individual banks' audited annual financial reports (balance Sheet and Income/Loss statement) of secondary data. The study used quantitative research approach and panel data regression. From the regression results; liquidity and asset tangibility are identified negative and significant relationship with leverage ratio. In the case of growth, dividend and net debt tax shield of bank, the regression result identified positive and significant relation with leverage. Independent variables such as size, risk, GDP and inflation have positive but insignificant relationship with leverage ratio. On the contrary profitability has negative and insignificant impact on the formation of capital structure of banks during the study period. The study recommends that commercial banks in Ethiopia need to remain profitable in order to rely less on external debt as a source of financing.

***Key words**: capital structure, leverage, commercial banks*

List of Acronyms/Abbreviation

CBE …….… Commercial Bank of Ethiopia

CLRM …….…… Classical Linear Regression Model

CSA ……. Central Statistic Agency

DIV ……..…….. Dividend

DW …….. Durbin Watson

ERP ……. Equity Risk Premium

GDP …… Gross Domestic Product

GNP …… Gross national product

GRZ …… Growth

INF ……. Inflation

Lev ……. Leverage

LIQ …… Liquidity

MM ……..... Millier and Modigliani

MOFEC ……. Ministry of Finance and Economic Cooperation

NBE …… National Bank of Ethiopia

OLS …… Ordinary Least Square

POT …… Pecking Order Theory

PROF ……. Profitability

ROA …….. Return on asset

ROE …….. Return on Equity

SIZ ……**....** Size

ATN …….. Assets Tangibility

TOT ……..... Trade off Theory

WACC …….. Weighted Average Cost of Capital

List of tables

List of figures

CHAPTER ONE

1. Introduction

1.1Background of the Study

Capital structure is a combination of different long term financial securities which mainly composed of equity, debt or debentures. Financing is process of collecting money through certain sources to be used on purchasing or maintain total assets, current operations of firm and any expected growth. Common stock, preferred stock and retained earnings are classes of firm's equity whereas debt can be classified as external financing. Most financing decision in practice reduced to a choice between debt and equity. The finance manager wishing to find a new project, but reluctant to cut dividends or to make a right issue, has to consider the borrowing option. The drawback of excessively high borrowing level can lead to inability to meet debt interest payments in years of poor trading conditions (Pike & Neal, 2006).

Preferred stock can be defined as category of ownership in a corporation that has more claims on total assets and net income than common stock. Preferred stock has fixed dividend at the end each period usually a fiscal year irrespective to whether firm earns net profit or not. Retained earnings refer to the portion of net income that firm reinvests into business. Retained earnings enhance the stake of common shareholders because it is regarded as property of common stockholders. Debt is amount borrowed by a firm to finance its business by issuing debt instruments. Firms usually pay interest on their debt at the end of each period e.g. annually, semiannually, quarterly etc. Interest is cost of debt for firm and fixed income for creditors (Van Horn, 2001).

Leverage refers to debt to equity ratio in financing a firm. Capital structure can be differing based on this ratio that is levered which means a combination of debt and equity and unlevered which means capital structure without debt. According to Murray, (2008) Banking involves very different functions and activities. In particular, modern banking mixes and confuses two different operations with very different effects: loans and deposits.

The importance of a company's capital structure, like the importance of dividend policy, has been the subject of heated academic debate. As with dividends, Miller and Modigliani argued, somewhat against the grain of academic thought at the time, that a company's capital structure was irrelevant in determining its average cost of capital. They later revised their views to take account of the tax implications of debt finance. If market imperfections are also considered, it can be argued that capital structure does have relevance to the average cost of capital. In practice, calculating a company's cost of capital can be extremely difficult and time-consuming; it is also difficult to identify or prove that a given company has an optimal financing mix (Watson &Head). This study attempts to identify determinants of capital structure in a sample of commercial banks in Ethiopia currently operated. To achieve this objective, data about were collected from annually audited financial statements of fourteen commercial banks for the period between 2011 and 2016. The reason for why selected banks for this study, among many reasons, availability of data, banking industry is well organized, and, its relatedness directly with cash and cash equivalent, the engagement of banking industry is very risky.

1.2 Problem statement

Debt financing has its own advantage and disadvantage over equity financing. Interest paid on debt is a tax deductible whereas dividends paid on stock are not deductible. This lead to debt has lower cost of capital. In addition the return on debt is fixed, so stockholders do not have to share the firm's profits if it is extremely successful. On the other hand using more debt increases the firm's risk, which raises the costs of both debt and equity. If the company falls on hard times and its operating income is not sufficient to cover interest charges, the stockholders will have to make up the shortfall; if they cannot, the firm will go bankrupt (Brigham and Houston, 2007). Factors that influence capital structure decision is not an exact science; even firms in the same industry often have dramatically different capital structure (Brigham and Houston, 2007).

The determinants of capital structure have been debated for many years and still represent one of the most unsolved issues in corporate finance literature. Indeed, what makes the capital structure debates so exciting is that only a few of the developed theories have been

tested by empirical studies and the theories themselves lead to different, not mutually exclusive and sometimes opposed result and conclusion (Rajan and Zingales, 1995).

Numerous studies were conducted on determinants capital structure on banks. However, those researches were not answered to Mayer (1984) question, stated that which variables determined financial ratio of firms. According to Octavia and Brown (2008) the capital structure of banks are still a relatively under-explored area in the banking literature and the special nature of the deposit contract, the degree of leverage in banking and the regulatory constraints imposed on banks have meant that banks (and financial institutions in general) have been excluded in previous empirical studies on standard capital structure choice.

The different combination of financing by firms gives birth to a question that determinant factors affect the capital structure formation of firms. Related with this Capital structure is an essential issue for the central banks to protect depositors from losses. There were also very few studies provide evidence from developing countries on capital structure determinants. Understanding on how commercial banks construct their capital structure and determined their bank specific and macroeconomic variables which influence financing decisions is not clear. The different combination of financing by firms gives birth to a question that determinant factors affect the capital structure formation of firms. Related with this Capital structure is an essential issue for the central banks to protect depositors from losses.

The best knowledge of the researcher there were few studies on capital structure on commercial banks in Ethiopia. Previous studies also constructed different conclusion on the relationship between determinants and capital structures. Study by Kibrom (2010), on the determinants of capital structure of commercial banks in Ethiopia, the explanatory variables, profitability, growth and tax shield resulted significant and negative relationship with leverage. However the study by Weldemikeal (2012), independent variables such as profitability and size exhibited a significant and positive relationship with leverage ratio. These result supported by Mayer (1984) it stated that applicable of capital structure theories with regard to the relationship existed between dependent and independent variable based on certain circumstances. In addition with research on the subject matter in Ethiopia were done only on industry specific factors but according to Kibrom (2010),

capital structure decision is not only the product of firm's own characteristics but also the macroeconomics environment in which the firm operates. Therefore, the basic motive of this study was to bridge the gap that the previous study provide and to find out the relationship between leverage and both firm specific and macroeconomic determinants of capital structure decision on commercial banks in Ethiopia for the study period between 2011 to 2016 in the case of selected commercial banks.

1.3 Objectives of the study

1.3.1 General objective

The main objective of the research is to identify factors that affect the capital structure of commercial banks in Ethiopia.

1.3.2 Specific objective of the study

More specifically, the research attempts to:-

1. To identified the relationship between bank profitability and leverage.
2. To determine the effect of growth on the capital structure formation of commercial banks in Ethiopia.
3. To evaluate the impact of size on banks leverage ratio.
4. To examine the relationship between dividend pay-out and leverage in the case of commercial banks in Ethiopia.
5. To assess the relation that exists between asset tangibility and banks' leverage ratio.
6. To examine the relationship between banks' liquidity ratio with leverage ratio.
7. To identified the impact of net debt tax shield on banks' capital structure formation (leverage ratio).
8. To determine the relationship between banks' risk with capital structure i.e. leverage.
9. To evaluate the interrelationship of macro-level determinant (inflation and GDP) and banks' leverage ratio.

1.4 Significance of the Study:

The result of this research would create knowledge of determinant factors both have theoretical and practical significance to

- ✓ Government, creditors, debtors, potential investors, depositors, business organization and other unlisted concerned parties.
- ✓ The NBE to ensure safety and soundness of banks, ensure efficiency and compliance of banks with rules and regulations and to ensure protection of depositors.

Furthermore the research significance related to validate capital structure determinant factors based on empirical data from Ethiopia.

1.5 Scope and Limitation of the Study:

This research primary employed secondary data consisting of annual report of Commercial banks i.e. one state owned commercial bank; namely Commercial Bank of Ethiopia (CBE) and thirteen other private commercial banks, which have at least operating for the last six years.

This study was done on banks in Ethiopia. Thus the results are therefore limited to commercial banks in Ethiopia and may not be generalized to other industries in Ethiopia or to other African nations. The study also focused on both firm specific and macro determinants factors. But firm level factors were limited to financial statements, i.e. both balance sheets and income statements of commercial banks with their accounting records, not on their market value. The study has inherent limitations resulting from the nature of the data employed; such as difficulty in providing detail explanation for some of the empirical statistical findings.

1.6 Organization of the study:

This study has five chapters. Chapter one presents introduction, problem statements, objectives of the study, significant of the study, scope and limitation of the study, organization of the study and operational definitions. In chapter two the detailed literature review were presented. These include theories, empirical evidence, determinants

measurements' and conceptual framework. In chapter three the research design and methodology were presented. Chapter four presents the results of the different methods used and analysis. Finally, chapter five presents conclusions, recommendation and suggestion for further research.

1.7 operational definitions

- ✓ Capital structure:- in terms of determinants, capital structure measured by leverage ratio (Rajan & Zingles, 1995).
- ✓ National bank of Ethiopia: NBE is the central bank, which control all banks operation with regard to rules and regulations.
- ✓ Capital market:- a market for securities (debt or equity), where business enterprise and government can raise long term funds (Yetayew, 2016).

Chapter Two

2. Literature Review

Why do some firms use more leverage while other uses less or no leverage in their capital structure? To answer this questions the aims of this literature review are; firstly, to explain the main theories which contribute significant amount to literature of capital structure, mainly on popular theories in the literature are pecking order theory, trade-off theory, signaling theory and market timing theory. Secondly, explore and compare empirical evidence on capital structure around in our globe. Thirdly determinants of capital structure Measurement, and finally Conceptual Frame Work.

2.1 The theoretical framework and approaches of capital structure:

According to Watson and Head, 2007, it is an important issue whether or not an optimal capital structure exists for individual companies and identifying factors that determine the rate of return required by shareholders and debt holders.

2.1.1 The traditional approach:

The proposition of traditional approach is that, an optimal capital structure exists and that a company can therefore increase its total value by the sensible use of debt finance within its capital structure (Watson and Head, 2007). The capital structure approach relies on a number of simplifying assumptions. Which are no taxes exist, choices of either perpetual debt or ordinary equity shares financing, companies can change their capital structure without issue or redemption costs, any increase in debt finance is accompanied by a simultaneous decrease in equity finance of the same amount, companies pay out all distributable earnings as dividends, risks associated with a company is constant over time, Companies' earnings and hence dividends do not grow over time are basic assumptions.

The individual firm cost of equity rise due to the rise of level of financial risk being faced by shareholders because of increased gearing. At high gearing levels the risk of bankruptcy threatening the value of shareholders' investments. At the initial point of replacing equity financing with debt, because of the insignificancy of financial risk, the investors are indifferent and their response is not a linear. The traditional approach, in contrast to Miller

and Modigliani approach, to minimize its overall cost of capital in order to maximize the wealth of its shareholders, the company should leverage its capital structure (Watson and Head, 2007). According to the traditional approach the firm's optimal capital exists at a point where the cheaper debt finance outweighing any increase in the cost of the company's equity finance due to the initial fall of company's WACC. If the company continuing gearing up, the company's WACC start to rise and results the rise of cost of debt and bankruptcy risk causes the cost of equity at a steeper rate. At very high levels of gearing, therefore, the company's WACC will rise at an even faster rate.

2.1.2 Miller and Modigliani

Proposition (I): the net income approach:

Miller and Modigliani (1958), there were argued that there is no change on WACC at any level of gearing, implying that no optimal capital structure exists for a particular company. They believe that capital structure has no impact on company's market value and cost of capital. They used a model on assumptions based on the traditional approach by adding one more i.e. capital markets were perfect. Market perfection implies that there is no bankruptcy risk. According to them, financial distress may lead to rise of additional finance in a perfect capital market. At higher levels of gearing, cost of equity (Ke) increases at a constant rate which leads to a higher financial risk faced by shareholders. Cost of equity and level of gearing has linear relationship. There is no relationship exist between cost of debt and level of gearing. A company gear up an equivalent amount of replacing equity with debt. The benefit of using an increased level of cheaper debt finance is exactly offset by the increasing cost of the company's equity finance. There is no change on WACC, therefore net income or an earnings is constant, so is its market value. They state that there is no different between on cost of capital either a company gearing or using only equity. Its cost is determined by the risk-free rate of return and the business risk of the company (Watson and Head, 2007).

According to Miller and Modigliani, the arbitrage approach to capital structure, goods were perfectly substitute should not sell in different price with the same market. They argued that companies were differ only on their gearing level will have identical average costs of capital. The assumptions for their argument were first, individuals can borrow at the same

rate as companies can be challenged second, there are no transaction costs associated with the buying and selling of shares is clearly untrue (Watson and Head, 2007).

Opponent of the MM approach, addressed that the cost of borrowing can rise with excessive leverage. Beyond a certain point of leverage, we would expect the firm to pay increasingly higher interest rates on borrowings. The greater the leverage, the lower the coverage of fixed charges and the more risky the loan (Horne, 2001).

Proposition (II): corporate tax:

Miller and Modigliani, (1963) amended their earlier capital structure by incorporating corporate tax on the model. Gearing up, by replacing equity with debt to benefit corporate tax and its tax deductibility of interest payment would increase its profit. Accordingly use of more debt over equity results the WACC will decline and the optimal capital structure for a company is 100 per cent debt finance. The cost of debt curve (Kd) from Miller and Modigliani's first model lower after-tax cost of debt finance (Kd(1-CT)) (Watson and Head, 2007).

Market imperfections:

There are factors which Miller and Modigliani failed to take into account in their second model of capital structure formations. These are Bankruptcy costs, Agency costs and Tax exhaustion (Watson and Head, 2007).

- ✓ **Bankruptcy costs:** MM assumed that market where perfect, while in practice it is considered to be efficient. In reality, high level of gearing may result high possibility of default in interest payment, which lead to bankruptcy.

Accordingly, Miller and Modigliani, in 1963, modified their view by considering bankruptcy risk. The market value of a firm increases due to the increasing value of its tax shield. This is because of company gearing by replacing equity with debt. Bankruptcy is possible if a company increases its gearing beyond a certain limit. In this regard the marginal benefit of the tax shield is outweighed by the marginal increase in the cost of equity due to higher bankruptcy risk.

The possibility of bankruptcy is high in levered firm than unlevered firm. Usually doesn't have a linear function with debt-to-equity ratio, rather it increases at an increasing rate beyond some threshold and it has negative effect on the value of the firm and on its cost of capital. The possibility of bankruptcy may cause the stock of the highly levered firm to be less attractive than that of the unlevered firm (Horne, 2001).

- ✓ **Agency costs:** in higher level of gearing, the equity ratio is lower, so that shareholders have fewer stake of company if it fails to risk. Therefore they prefer high risk and high return investment benefit. Debt financers take measure to prevent high risker investment. They may impose restrictive covenants on the management, or may increase the level of management monitoring and require a higher level of financial information with respect to the company's activities. (Watson and Head, 2007).

2.1.3 Pecking order theory:

Pecking order theory (Donaldson 1961) argues that there is no unique combination of capital structure of debt and equity to minimize the cost of capital. Companies have their own well-defined order of preference with respect to the sources of finance available for long-term investments. The theory advocates use of internal source i.e. Retained earnings rather than external sources of finance. Otherwise bank borrowings and corporate bonds are preferred external source of finance. Issuing new equity financing is the least option for firm. The aim of this preference involves issue costs and the ease with which sources of finance are accessed (Watson and Head, 2007).

Pecking order theory of the corporate capital structure has long root in the literature given by Myers in 1984. According to Watson and Head, 2007, the order of preference stemmed from the existence of asymmetry of information between the company and the capital markets. With information that company's manager have will benefit for existing shareholders. If the retained earning not sufficient to finance the project, the manager should prefer debt financing otherwise the market undervalue to newly issue shares. If the market overvalues firm's equity it is better to issue shares. Accordingly, the pecking order theory, there is hierarchical preference of financing. To consider the pros and cons of these sources of funds:

Retained earnings:

The portion of net income that company reinvests into business is called retained earnings. It is at top of preference in pecking order theory. According to MM proposition, retained earnings is the cheapest source of financing, readily available with no cost to acquire it, it abstains from issuing either debt or equity thus controls their prices from fluctuation that firms experience in response to their issuance in financial markets. In opposite to these retained earnings can enhance free cash flow problem because additional reinvestment may generate additional free cash flow, it increases the stake of shareholder in the organization thus enlarges the agency problem of equity therefore it can increase agency cost, it ignores advantage of tax shield that could be achieved if firm is financing its business with debt because reinvestment decreases need for external financing.

Debt:

Borrowing of firm is denoted by debt and according to preference of pecking order theory it is in between retained earnings and equity. Like retained earnings debt offers tax shield benefit because cost of debt such as interest is tax deductible, it pacifies the free cash flow problem because interest payment leaves less free cash flow to managers to decide on, repayments on debt make managers alert to generate enough cash flow to pay off financial obligations of creditors of firm, when firm issues debt, it is considered as good news and price of share increases in the market, because issuance of debt shows both: confidence of investors in business and confidence of firm to generate enough cash flow, issuance of debt leaving shareholders with fewer stakes in firm therefore it can decrease the agency problem.

Using of debt financing has its drawback. According to POT, issuance of excessive debt can cause cost of financial distress and bankruptcy, can generate conflict of interest between shareholders and creditors in conditions such as underinvestment and overinvestment, makes a firm bound to pay interest with regular interval and principal on maturity irrespective to conditions a firm faces, it is not easy to acquire, it usually takes more time in collecting funds by issuing debt securities as compared to retained earnings and unlike retained earnings, it has transaction cost of selling debt instruments.

Equity:

Stock that firms issue in order to raise the fund, form equity portion of capital structure. Certainly equity also brings some advantages and disadvantages to firms. According to POT issuance of equity reduces the chances of bankruptcy therefore decreasing the cost of financial distress, it can pacify the conflict between shareholder and creditors because if firms have more equity and selecting risky projects will expose more risk to shareholders than creditors, there is no fixed cost and principal repayment of equity and dividend payment is subject to net income of firm, dividend payment to shareholders can also address free cash flow problem like a substitute of debt and it gives its holder that control of organization in form of voting power are the basic advantages. Accordingly using of equity has its drawback. As POT stated equity does not consider tax shield advantage, it increases the shareholder stake in business thus increasing agency cost, unlike retained earnings equity is not readily available and takes time to be collected, like debt, equity has transaction cost, and it is more risky to issue equity because investors consider the equity issues as a bad news thus witness the decline in the price of stock.

2.1.4 Trade-Off Theory:

Brigham and Houston, 2007, defined trade-Off theory as the capital structure theory that states firms trade off the tax benefits of debt financing against problems caused by potential bankruptcy. They observe that Interest paid on debt is tax deductible which makes less expensive than preferred and common stock. Which means alternatively the government paid the tax on debt or debt provides tax shelter benefits. As the result using more debt reduce taxes and increase operating income. Accordingly there is target debt ratio for firms' to reduce the adverse effect of potential bankruptcy. They also argued that there is some threshold level of debt for optimal capital structure, beyond that the bankruptcy -related costs become increasing and it offset the debt benefits.

2.1.5 Signaling Theory

MM assumes that information is symmetric if both investors and managers have the same information about a firm's prospects otherwise it is asymmetric for one side. Capital structure changes convey information about the profitability and risk of the firm for manager. It is the implication of cost and benefits may depend on the firm's market value.

It gives an incentive for investors to know the firms are undervalued. It leads to alter company's capital structure by issuing more debt. Increased leverage is a positive sign (Horne, 2001).

A firm with an opportunity for future capital adequacy should prefer not to finance through new stock offerings, but firms with poor prospects do like to finance with outside equity. If firm issues new stock it seems to loss its value in the market and it is a signal for firm's prospect are not bright. To avoid stock price depress, any firm should maintain a reserve borrowing capacity for future better investment opportunity (Brigham and Houston, 2007).

2.1.6 Market timing theory

Market timing theory is another type of theory which identified capital structure combination of debt and equity to finance firms' investment. Market timing hypothesis explains that selection of specific fraction of debt and equity in capital structure is depending upon mispricing of these instruments in financial markets at timing the firm needs financing for investment. This theory deals with the valuation of financing which give high value in time in contrast with TOT and P0T, both concerns with to finance with debt or equity.

In other words, contrasting the explanation of TOT and POT, marketing timing theory elucidate that firms do not care about whether to finance with debt or equity but they just choose any form of financing that appears to be overvalued by financial markets at that point in time. Graham and Harvey (2001), depict that firms consider the price appreciation of share before issuing it, and debt rating and financial flexibility before issuing debt. They argue that stock price run-up increases the chances of issuing the equity as well as dual issue. Market timing theory assumes that mispricing of financial instruments exists and firm is able enough to detect any mispricing effectively. Information asymmetry refers to the condition in which managers have more relevant information than investors for example about share price, bond price etc. This creates imbalance of power based on knowledge and is common in financial markets. Asymmetric information crisis is more problematic in developing countries than in developed countries (Cobham and Subramaniam, 1998).

Huang and Ritter (2009), argue that market timing is an important determinant of capital structure. They put light on long-lasting effect of equity risk premium on capital structure through their past impact on leverage decision. Firms cover the larger portion of deficit with debt issuance when the ERP is higher.

2.1.7 The target capital structure:

A firm's optimal capital structure would maximize its stock price. In practice the optimal capital structure can tend to measure more as a range like from 40 to 45 percent debt, rather than as a precise number. So that firm's target Capital Structure is the mix of debt, preferred stock, and common equity with which the firm plans to raise capital. If the firms' actual debt ratio below its target it may raise capital by issuing debt otherwise equity (Brigham and Houston, 2007).

According to Brigham and Houston, 2007, Business risk, the firm's tax position, financial flexibility, and Managerial conservatism or aggressiveness are largely determine the target capital structure of firms'. The intrinsic value of stock may lead managers' decisions to raise debt financing.

2.1.8 Business and Financial Risk:

Business and Financial risks are risks which are related with firms' capital structure financial decisions. Business risk result from unlevered capital structure but financial risk is because of leverage. Business risk can be measured by the variability in the projected return on assets (ROAs). ROE varies from time to time because of many factors like-booms and recessions in the national economy, successful new products introduced both by firm and by its competitors, labor strikes, a fire in main plant, and so on. It also varies among in a given industry. Business risk depends (Brigham and Houston, 2007).

2.1.9 External Assessment of capital structure:

Financial leverage results from the use of fixed cost financing, such as debt and preferred stock, to magnify return and risk. The amount of leverage in the firm's capital structure can affect its value by affecting return and risk. A rough assessment of capital structure of firm's can make by using financial statements. A direct measure of the degree of indebtedness is the debt ratio. Higher this ratio, the greater the relative amount of debt (or

financial leverage) in the firm's capital structure. Measures of the firm's ability to meet contractual payments associated with debt include the time interest earns ratio and the fixed – payment coverage ratio. Generally, the smaller these ratios, the greater the firm's financial leverage and the less able it is to meet payments as they come due.

2.1.10 Underinvestment Problem:

In the case of financing a project it may give a positive net present value but it favors debt holders than to that of stockholders. It enhances the benefit of debt holder at the expense of stockholders. It diminishes risk by offsetting more any favorable cash-flow characteristics. Managers reject projects on behalf of stockholder. The underinvestment proposition can work on an option pricing model framework (Horne, 2001).

2.2 Empirical evidences:

2.2.1 Evidence from Previous study in different countries

There are a lot of academics and other financial institutions that have tried to investigate the main factors that determine the capital structure of banks. Here below the empirical evidence of capital structure study in selected research in addition with this after knowing theories of capital structure we need to see how much research work has been done on capital structure with regard to justify the predictions of these theories. The empirical evidence in the literature of capital structure subject to specific condition in prediction of some theories work while hypothesis of other theories do not. Likewise the behavior of banks to adjust the capital structure is changing when they are confronted certain internal (bank specific) and external (outside of the bank) situation.

According to Jucá et' al, (2012), studied that Capital Structure Determinant's of North American Banks and the Compensation Executive Program-An Empiric Study on the Actual Systemic Crisis. The target 30 banks which are account nearly 60% of the total assets of banks population during the period 2003 to 2010 data. The determinant factors which the research used were Financial leveraging at market value, Size, Profit, Growth opportunity, Guarantees, Payment of dividends, Compensation program for executive managers, Risk, Market value of deposits, Market value of non-deposits and Systemic crisis period used as dummy variable. The research resulted with highest arithmetic mean

values for the variables profit, growth opportunity, payment of dividends and compensation program for executive managers the period before the systemic crisis (2003 to 2006) but the period during the systemic crisis (2007 to 2010) exhibits the highest arithmetic mean values for the variables leveraging at market value, guarantees offered via tangible assets, assets risk and market values of deposit operations. The research expressed the result based on Goodness of Fit Test (R^2), which related each endogenous variable i.e. dividend payout and capital structure valued at 0.6030, meaning that the model is able to explain the phenomena of the Capital Structure at the amount of 60.30 %. The remaining 39.70% is explained by the other variables that have not been included yet into the research model and the error. In the case of Hypothetical Testing done base on bootstrap resampling method.

Ali *et al.* (2011), studied factors affect the capital structure of 22 commercial banks in Pakistan during the period 2006-2010. They found a positive and significant relationship between bank's leverage and its size and tangibility. They also found that there is a negative and significant relationship between bank's leverage and both its profitability and liquidity. Ali *et al*. concluded that the banking sector in Pakistan is likely to follow STOT. Similarly, Siddiqui and Shoaib (2011) noticed banks' size play significant role in raising not only their profit efficiency but also their market value. The researchers suggested that there is a need for a policy shift from consumer banking to pro-real sector loaning. It means banks should structure their capital in line with long- term investment trends instead of short term gains from leasing cars or houses.

Amjad et'el (2013), explore the factors determining the capital structure of banking sector of Pakistan. A panel data set of 26 banks for the period of 2007 to 2011 was selected to fulfill the objective of this study. Size, tangibility, profitability, growth opportunities and liquidity are the significant determinants of capital structure. The mean value of Leverage is 0.8711, which means that 87% of debt financing is done against total assets in banking sector of Pakistan over the period of 2007-2011. The standard deviation of the leverage is 0.0891, its minimum value is 0.4649 and the maximum value is 0.9842. Pearson Correlation Coefficient Matrix shows that all the predictors of the model have value of coefficients below the mark which will not cause multicollinearity and manipulate results

of estimated model. Regression Results illustrate that banks' size has direct relationship with leverage and value of coefficients is significant at 1% level in both models which predicts that banks prefer leverage financing by increasing the size of advances. Similarly, liquidity of banks also has direct impact on leverage, and its coefficient is significant at 5% in case of fixed effects model. Its statistical relationship with leverage, in case of random effect model, is found to be insignificant. Empirical findings advocate improvement in level of leverage with the increase in cash and cash equivalents which enhances the ability of banks to meet short term obligations. Tangibility, profitability and growth opportunities have inverse relationship with leverage in both models and their coefficients are significant at 1%. It means leverage level of banks in Pakistan shrinks by escalating level of collateral assets, ROA, and growth opportunities for advances.

Fenty Fauziah, Rusdiah Iskandar (2015), the study aims to analyze and explain determinants of capital structure of the banking sector companies listed in Indonesia Stock Exchange for the period of 2012-2014. The exogenous variables used in this research are Firm Size, Firm Risk, Profitability and Firm Growth. The endogenous variables are the Dividend Payout and Capital Structure. The goodness of fit of the model is tested using the predictive-relevance value. The R^2 values for each endogenous variable are, Dividend payout and capital structure is 0.333 and 0.744 respectively. The predictive-relevance value is 0.6030, meaning that the model is able to explain the phenomena of the Capital Structure at the amount of 60.30 %. The remaining 39.70% is explained by the other variables that have not been included yet into the research model and the error. The hypothetical testing is done by Bootstrap resampling method and the result was shown that the Firm Size has insignificant effect to the Dividend Payout but the Firm Size has negative significant effect to the Capital Structure, the Firm Risk has positive significant effect to the Dividend Payout but the Firm Risk has insignificant effect to the capital structure, the profitability has positive insignificant effect to the Dividend Payout but the profitability has negative significant effect to the capital structure, the Firm Growth has insignificant effect to the Dividend Payout but the growth has positive significant effect to the capital structure, and finally the dividend payout has positive significant effect to the capital structure.

Sen and Pattanayak (2005; 2009), examined the capital structure choice of Indian banks. They used on a sample of 82 Indian banks comprising of public sector banks, private and foreign banks for the period 1996 to 2002. They found liquidity, size, efficiency and growth, quality of assets, profitability and service diversification to be the most critical factors influencing the capital structure of Indian banks. They added that the short-term debt elements and long-term borrowings are negatively correlated with profitability, while deposits demonstrate positive and significant correlation. The researchers also observed positive and significant correlation between all forms of debt and size with the exception of long-term borrowings.

Siam *et al.* (2005) examined determinants of 12 Jordanian banks' leverage during the time period 1992-2001. They found bank size (measured by total assets), retained earnings divided by total assets, liquidity ratio and the long and short-term debts to be determinants of leverage. They also found a positive relationship between bank's leverage audits age and the total assets associated with retained earnings divided by total assets. Siam *et al*. also observed a negative relationship between the bank's leverage and the liquidity ratio associated with the long and short-term debts.

According to AL-Mutairi and Naser (2015), the study used data from 47 gulf cooperation council commercial banks for the period between 2001 and 2010. There were 406 observations for the study. Descriptive Statistics study showed that the mean leverage (total debt to total asset) of banks was 84 percent with 7.6 percent standard deviation. This means that more than 84 percent of the banks in Gulf cooperation Council are financed by debts. This highlights that debt ratio is relatively high in the sample banks. Leverage for the sample period ranges between 46 percent and 99 percent. The correlation study among the explanatory variables used to estimate the regression model. Which illustrates that leverage (dependent variable) is negatively and significantly correlated with bank age. It indicates that banks with higher leverage have less working experience. It exhibited that positive and significant correlation between leverage and ROA, liquidity and bank size. The table shows further that leverage is insignificant correlated with growth (-0.70), tangibility (0.025), and risk (0.058). The regression analysis of leverage as dependent variable and the seven explanatory variables indicated that a positive relationship between

bank's age and leverage. There were a positive and statistically significant association between bank's leverage and banks' growth. Further the study shows that there were a negative relationship between profitability represented by ROA and leverage. It also demonstrated that a negative and significant relationship between assets tangibility and leverage. There was negative relationship between leverage with liquidity and risk, but this relation was not statistically significant.

Aremu and Ayanda, 2013, studied determinants of Capital Structure in Nigerian Banking Sector empirically. Evidences shows that the objective were to explore the relationship between the level of leverage ratios with "Size", "Dividend Payout", "Profitability", "Tangibility", "Liquidity", "Growth" and "Tax Charge"; with reference to the capital structure models and theories, and to identify leverage ratios which indicates the most pertinent factor motivating the capital structure choice by the Banking Industry in Nigeria between 2006 and 2010. The research used pooled ordinary Least Square (Pooled OLS) technique in obtaining the numerical estimates of the coefficients in different equations. The data was sourced mainly from the Annual Reports and Statement of Accounts of First Bank of Nigeria Plc, United Bank for Africa, Guaranty Trust Bank Plc, Zenith Nigeria Plc and First City Monument Bank Plc. The research was found that banks dividend Payout is positively related to Leverage with a coefficient statistically significant at 1%. This support that banks management prefers the internal sources of financing to external one. Size of banks exhibiting a positive relationship with Bank Leverage ratio on the basis of the Bankruptcy Cost Theory that large firms are more diversified and as such, have easy access to the capital market, receive higher credit ratings for debt issues, and pay lower interest rate on debt capital hence they are less prone to bankruptcy. Variables were negatively correlated with leverage are Growth, Profitability and Risk. For Growth, the finding supports that equity controlled firms have a tendency to invest sub-optimally to expropriate wealth from the enterprises' bondholders. For profitability the result supports internal financing of investment and less reliance on debt financing and finally for Risk, the finding support that the greater the chance of a business failure, the greater will be the weight of bankruptcy costs on enterprise financing decisions and as the probability of bankruptcy increases, the agency problems related to debt become more aggravating. But the other variables, i.e. Tangibility and Tax Charge are inversely related to Bank Leverage

ratio. Tangibility by impacting on financial leverage augments risk through the increase of operating leverage. While Tax Charge though rightly signed is also seen to conform to "a priori" expectations in their model that the interest payments on debt is tax-deductible, hence reducing company's tax burden.

Amidu (2007) examined determinants of capital structure of 19 banks in Ghana during the period 1998-2003. He found banks' short-term debt is negatively related to their profitability; risk and assets structure are positively related to bank size, growth and tax. He also found banks' long-term debt is positively related to their structure and profitability and inversely related to their risk, growth, size and tax. He observed that more than 85 per cent of the Ghanaian banks' assets are financed by debt and short-term debts appear to constitute more than three quarters of the banks' capital pointing to the importance of short-term debt over the long-term debt in Ghanaian banks' financing. Gatsi and Akoto (2010) added that more that 85 percent of the total capital of banks in Ghana is made up of debt. They observed that of this, 65 percent constitute short-term debts while 22 percent is made up of long-term debts. The researchers observed profitable banks in Ghana use less debt or they depend more on internally generated funds rather than external funds. This lends support to the pecking order theory of firm financing. Vitor and Badu (2012) observed banks listed on the Ghana Stock Exchange are highly geared and this is negatively related to the banks performance. They added, high levels of gearing among listed banks can be attributed to their over dependency on short-term debt. Vitor and Badu concluded that listed banks should increase their efforts to internally generate funds to finance their operational activities.

Nyamora (2012), analyzed the determinants of capital structure of Commercial banks in Kenya in an empirical approach. The objective of the study was to find out the determinants of capital structure of commercial banks in Kenya. The study used inferential research design to find out the relationship between independent variables and dependent variables. The population of this study was all the 43 commercial banks in Kenya operate during the period 2002-2011. The study shows that there were a negative relationship between the banks' profit, risk and asset tangibility and short-term debt. There were also correlation between profitability and short-term debt. Short term-debt, the study identified,

risk has no influence on banks structure. Assets tangibility and short-term debts had negative relationship. Again the results show a positive and statistically significant between taxation, growth and size on one hand and short-term debt on the other hand. In the case of long-term debt, the study identified there were a statistically significant and positive relationship with profitability of banks. The results also show a negative relationship between risk and long-term debt. The research finding states that profitable firms use less debt capital. It identified that there were a negative relationship between risk and long-term debt. It identified a negative and statistically significant between long-term debt and banks' growth. It also identified that there were a positive relationship between operating assets (fixed assets) and long-term debt. The research finding shows that there were a negative relationship between size and long-term debt.

2.2.2 Evidence from previous study in Ethiopia

Kibrom Mehari (2010), an empirical study on the determinants of capital structure of commercial banks in Ethiopia. Multivariate regression analysis was made based on financial statement data of the selected commercial banks over the study period of 2000 - 2009. Factors used to determined capital structure formation were profitability, tangibility, size, growth, age and tax shield of firms as independent variables where as leverage ratio (debt to equity) as dependent variable. The descriptive statistic of the study resulted with a mean of 81% of debt incorporated in the capital structure of commercial banks for the study period. The regression result of adjusted R^2 was 0.6129 indicated that the dependent variable, debt to equity ratio (indebtedness), can be explained by independent variable accounts 61.29%, the remaining where determined by other variables which were not considered by this study. From multivariate linear regression result of hypotheses testing indicated that there were a negative and 1% significant relationship between profitability and indebtedness of banks. There was 1% positive and significant relationship between the explanatory variables size and tax shield with dependent variables leverage ratio of banks for the study period 2000 to 2009. But 5% positive and significant relationship exists between age of banks and debt to equity ratio of selected commercial banks in Ethiopia.

An empirical Study, Weldemikael, 2012, investigate determinants of Capital Structure of eight Commercial Banks in Ethiopia for the succeeding twelve years data (2000 to 2011). Determinant factors were profitability, tangibility, growth, risk, size and liquidity. The descriptive statistics study resulted with 88.9% of banks in Ethiopia were financed by debts. It highlighted that there were high debt ratio. There were great variations in profitability, growth, tangibility, liquidity, size and adoption of risk among banks.

Correlation analysis of the study shows that leverage (dependent variable) was negatively correlated with profitability, growth, tangibility, risk and liquidity of the firm. However, only size has positive correlation with leverage.

The study used the fixed effect model for regression analysis of both dependent and independent variables. Both profitability and liquidity was strongly statistically significant at 1 percent level and had negative relation with leverage ratio. However, size was statistically significant at 1 percent level but it had positive relation with leverage ratio. The fixed effect model also shows that tangibility was statistically significant at 5 percent level and had negative relation with leverage ratio. But risk and growth do not have statistically significant relationship with leverage.

2.3 Determinants of capital structure Measurement

In this part of the literature, we discussed the determinant measurements of capital structure. Furthermore, the investigation of the literature allows us to deduce that the works on the determinants of banks capital structure split in to two broad categories i.e. Bank Specific factors and Macroeconomic factors. Factors like liquidity, size, efficiency, quality of assets, profitability, service diversification, tangibility, growth, risk, Assets Structure, Non-debt Tax Shields, Free Cash Flows, Value of firms**,** Commercial Trade Position, Age, Dividend Payout, and the compensation of executive managers were previously used by other researchers. For this research we used factors that could make difference and relevant for decision making purpose in Ethiopian context. These were profitability, Dividend Payout, size, assets tangibility, growth, Liquidity, Non-Debt Tax Shield, Risk, inflation and economic growth (GDP).

2.3.1 Bank Specific Determinant Factors measurement

1. Financial leverage /trading on equity

According to Brigham and Houston (2007), financial leverage can vary across industry and even among individual firm in the same industry. Industries engaged in Pharmaceutical and computer businesses use relatively little debt because of factors like cyclicality, research orientation or subject to huge product liability suits. On the other hand there are companies which use relatively heavy debt by using their fixed assets as collateral and their relatively stable sales make it safe to carry more than average debt. '' The times-interest-earned (TIE) ratio gives an indication of how vulnerable the company is to financial distress.'' Factors which influence this ratio are; (1) the percentage of debt, (2) the interest rate on the debt, and (3) the company's profitability.

$LEV_{i,t}$ = Total $Liabilities_{i,t}$ / Total $Assets_{i,t}$, of the bank i in year t

2. Profitability

ROA is a widely used criterion to measure performance. It is defined as the ratio of bank annual earnings to its total assets and shows the efficiency of the management in generating income from invested capital. It is defined as the ratio of earnings before interest, tax and depreciation to total assets.

Or

ROE denotes the rate of return on shareholders' equity and it indicates the management's ability to generate profit with the money shareholders have invested. It is often but sometimes inappropriately (or insufficiently) used performance measure, since it does not adjust for the scale of risk. But for this research return on assets used to measure profitability of banks.

Return on Assets = Profit (Loss) before interest and Tax /Total $Assets_{i,t,}$ of the bank i in year t

3. Stability of Sales /Growth opportunity/

A firm whose sales are relatively stable can safely take on more debt and incur higher fixed charges than a company with unstable sales. Utility companies, because of their stable demand, have historically been able to use more financial leverage than industrial firms (Brigham and Houston, 2007. Banks' growth can be measured by the ratio of its assets increment for the period to the total assets of the period.

$GRZ_{i,t}$ = Annual Growth of Total $Assets_{i,t}$, of the bank i in year t

4. Size (Nature) of Banks

Usually assets-under-management are taken as an indicator for the size of a bank. The book value of bank total assets is as well a control variable, indicating if the categorization according to the volumes might be necessary. According to Deesomsak et'al (2004), large firms have lower agency costs of debt; relatively smaller monitoring costs, less volatile cash flows, easier access to credit market, and require more debt to fully benefit from the tax shield. Therefore bank size is measured by the natural log of assets.

Bank size = Logarithm of total assets (Frank and Goyal, 2009); (Degryse et al, 2009)

5. Dividend

According to MM follow-up paper published in 1963 dividend payments to stockholders are not deductible in contradict with debt for the firm (Brigham and Houston, 2007, pp-457). This related with pecking order theory, which indicates there is positive relationship between dividend and leverage. Aremu and Ayanda (2013) find significant positive relationship between banks' dividend Payout and Leverage in Nigeria.

According to Husnan (2000), the amount of the dividend will be influenced by the presence or absence of profitable investment opportunities. The profit obtained from the company's operations will be used for investment, and the remaining profit is distributed as dividends. Dividend policy also has a close relation with funding decisions. If a company needs funds, one alternative that can be done is issuing new shares as a dividend payment (stock dividend).

Dividend= Dividend pay $out_{i.t}$/Total $Equity_{i.t}$ of the bank i in year t

6. Asset tangibility

Firms whose assets are suitable as security for loans tend to use debt rather heavily. General-purpose assets that can be used by many businesses make good collateral, whereas special-purpose assets do not. Thus, real estate companies are usually highly leveraged, whereas companies involved in technological research are not (Brigham and Houston, 2007.

The tangible assets of the company are considered one of the main guarantees for the creditors, and the importance of these assets in the capital structure of the company has increased relevance over the debt (Padron et al, 2005). Sayilgan et al (2006) and Gaud et al (2005) add inventories to fixed assets by considering that companies resort to borrowing, total or partial, for their funding and emphasize that in many situations inventories have significant value at the time of liquidation of the company.

Tangibility is defined as the ratio of total fixed assets to total assets. Agency theory suggests that firms with high leverage tend to underinvest, or invest sub-optimally, and thus transfer wealth away from debtholders to equity holders. These cause lenders to require collateral because the use of secured debts can help alleviate this problem.

$TAN_{i,t}$= Fixed Assets / Total $Assets_{i,t,}$ of the bank i in year t

7. Liquidity

According to F. Brigham, 2011, it is a sign for firms' ability to due, their obligation in the coming year and it also can be quickly converted to cash at the going market price. It shows the relationship of a firm's cash and other current assets to its current liabilities.

$Liq_{i,t}$= Total Current Asset/Total Current $Liability_{i,t}$ of the bank i in year t

8. Net debt tax Shield

Other items apart from interest expenses, which contribute to a decrease in tax payments, are labelled as non-debt tax shields (for example the tax deduction for depreciation), (Patrik BAUER, 2004). Modigliani and Miller (1963) and Miller (1977) propose that

interest bearing tax shield affects a firm's capital structure. Tax shield is the concept of reduction in income taxes payment resulted from taking an allowable deduction of taxable income.

Depreciation divided by total assets is used in order to proxy for non-debt tax shields in this study. The formula that provided by Titman and Wessel (1988) is used to calculate non-debt tax shield: Operating income minus interest payments, minus corporate income tax payments over corporate tax rate.

$$NDTS_{i,t} = Depreciation / Total\ Assets_{i,t,}\ of\ the\ bank\ i\ in\ year\ t$$

9. Risk

Risk or Volatility is a proxy for the probability of financial distress and it is generally expected to be negatively related with leverage. Several measures of volatility are used in different studies, such as the standard deviation of the return on sales (Booth et al., 2001), or standard deviation of the first difference in operating cash flow scaled by total assets (e.g., Bradley et. al., 1984; Chaplinsky and Niehaus, 1993; and Wald, 1999), but in this research we used standard deviation of the percentage change in Return On Asset (e.g., Titman and Wessels, 1988). All these studies find that business risk is negatively correlated with leverage.

$$Risk = Std\ of\ ROA_{i.t}\ of\ the\ bank\ i\ in\ year\ t$$

2.3.2. Macroeconomics Determinant Factors Measurement:

These factors are beyond the control of banks' managers in the capital formation. Their impacts are considered at country level not specific to the banking industry or it is policy matters where issued by regulatory body.

1. Inflation

Inflation affects capital investment decisions in to two fold, i.e. in terms of reducing real value of future cash flows and by increasing uncertainty. Nwankwo (1982) believes that inflation is an excess of demand over supply. Inflation could be creeping, galloping or hyper depending on the magnitude of its rate in a year. Generally, the rapidly fluctuating

inflationary pattern creates high degree of instability in an economy. Where the structure of the economy is weak, the effect could be very devastating. Adamson (1996) defines it as the rate of increase in general price level in an economy.

INF = change in consumer price index

2. Economic Growth/GDP/

Growth can be a good independent variable. There are conflicting views found in theories of corporate capital structure regarding the relationship between growth and leverage of the firm. GDP, which is used as a macroeconomic determinant of capital structure, measures total economic activity within a country whereas the GDP growth reflects its annual change. Economic growth measures in terms of the logarithm of the country total gross domestic product.

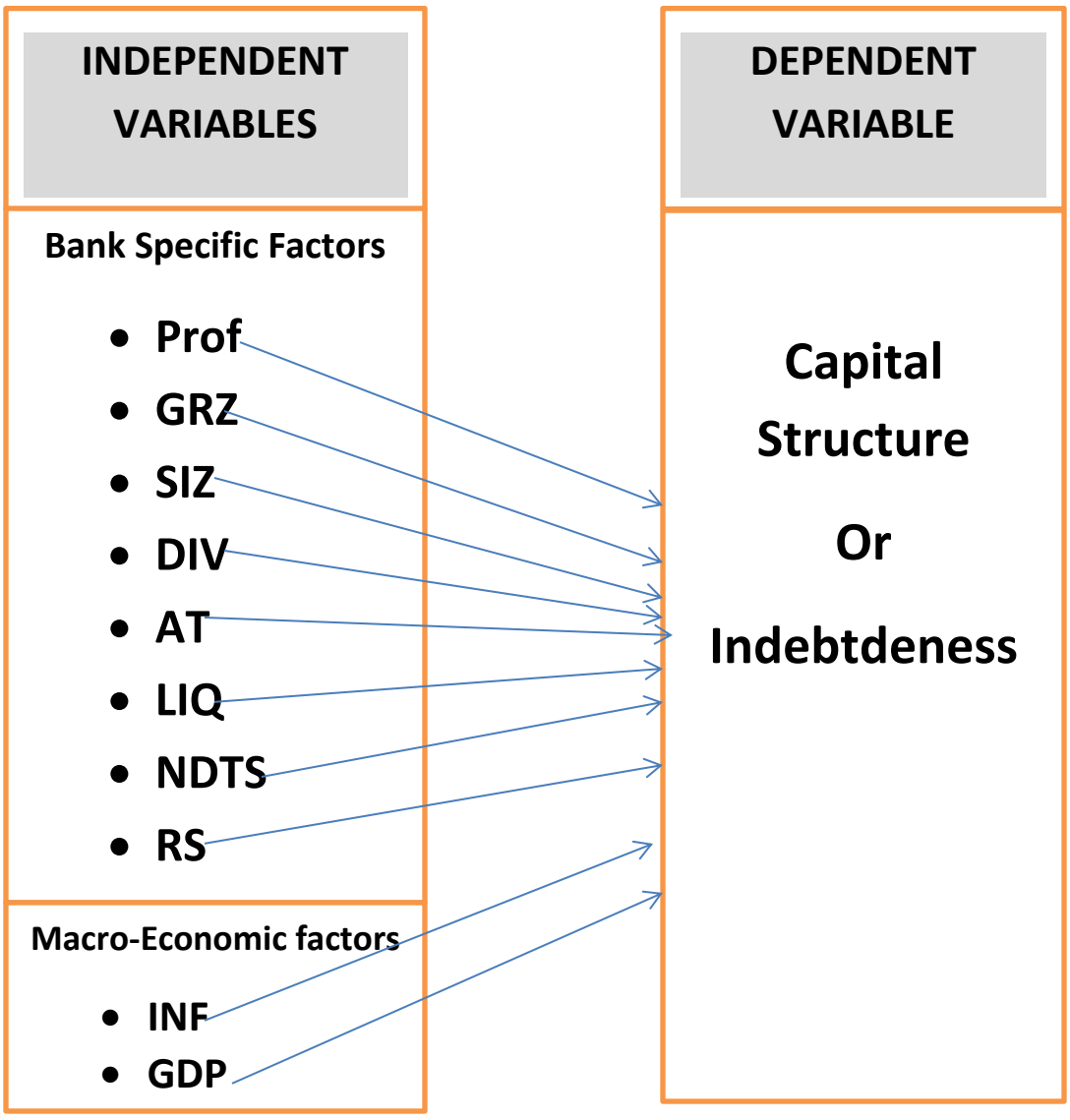
GDP= Log (total gross domestic product)

2.4 Conceptual Frame Work and Research gap

2.4.1 Conceptual Frame work

The main objective of this study is to examine the determinants of capital structure of commercial banks in Ethiopia. Based on the objective of the study and insights gained from the literature review, the following conceptual model is framed. The model proposes that Capital structure or indebtedness is affected by both bank specific and macroeconomic factors.

Figure 2.1: conceptual framework



Source: Researchers' intended relationship between dependent and independent variables.

2.4.2 Research gap

Most empirical studies that examined the determinants of capital structure have been done for specific country level, not at macro level. From best knowledge of the researchers there were no enough studies conducted on the determinants of capital structure in Ethiopia and even these studies were not recent, (Weldemikael, 2012) and there is little evidence on capital structure of commercial banks in Ethiopia. Similarly, the findings of prior empirical studies have provided varying evidence related to the determinants of capital structure. Therefore, the current study fills the gap in the literature and provided evidence, using recent and long data, of determinants of capital structure of banking sector in Ethiopia.

Chapter three

3. Research Methodology

This chapter deals with research methodology employed to carry out this study. It starts by discussing the research design and approach precede with a discussion about the nature and instruments of data collection, Population, Sampling and Sample, data analysis and presentation, and ends with variable description and research hypotheses.

3.1 Research Design and Approach

Research design is serve as a blue print which specifying the methods and procedures for collecting and analyzing the required data. Since this study was designed to examine the relationships between capital structure and its determinants, a logical reasoning either deductive or inductive is required. Deductive reasoning starts from laws or principles and generalizes to particular instance whereas inductive reasoning starts from observed data and develops a generalization from facts to theory. The three common approaches to conducting research are quantitative, qualitative, and mixed methods. Deductive reasoning is applicable for quantitative research whereas inductive reasoning is for qualitative research. Quantitative research is a means for testing objective theories by examining the relationship among variables (Creswell 2009). In quantitative research approach there are two strategies of inquiries namely, survey design and experimental design. The chief advantage of quantitative approach is that numbers are easy to work with, data are readily collected, coded, summarized and analyzed (Dunn 1999). Further quantitative research approach has the advantage of being able to make generalizations, for a broader population, based on findings from the sample. This study uses deductive reasoning to examine the impact of determinant factors (independent variables on dependent variable) on capital structure formation on commercial Banks in Ethiopia.

In quantitative research approach there are five different research designs. These are Quasi-experimental research, Descriptive research, Correlational research, Survey research and Evaluation research. The researcher selected Correlational research design because it aims to systematically investigate and explain the nature of the relationship between

variables. Correlational research studies go beyond simple describing what exists and are concerned with systematically investigating relationships between two or more variables of interest. Such studies only describe and attempt to examine the nature of relationships that exist, and do not examine causality (porter, 2000). The data related to a documentary analysis which is necessary to undertake this study were gathered from the financial statements of fourteen banks and NBE for six consecutive years (2011-2016), and the data was the audited financial statements particularly balance sheet and income statement.

3.2 Population, Sampling and Sample

3.2.1 Population:

The population of this study was all the seventeen commercial banks in Ethiopia currently licensed by the National Bank of Ethiopia to operate. Out of these sixteen banks are privately owned and most of them were established during the current regime of EPRDF.

3.2.2 Sample and Sampling Design

According to Creswell, 2009, the purpose of survey research is to generalize or makes claim from the sample to the population so that inferences can be made about some characteristic, attitude or behavior of the population. The ultimate goal of survey study is to learn the population with their samples. For this study, six years balanced data (2011-2016) were considered. Therefore, those Commercial Banks which were established after 2010 and started to provide financial statement in the succeeding fiscal year were not included in this study because this study incorporated only banks that have providing first financial statements for the year 2010. Therefore, only fourteen banks information were used in this study to examine the determinants of capital structure. The sample size was enough for sound conclusion which reached approximately 82% of the total population.

3.3 Nature of Data and Instruments of Data collection

This study uses panel data. Panel data is used because it can take heterogeneity among different units into account over time by allowing for individual-specific variables. Besides, by combining time series and cross-section observations, it gives more information. The study is based on the data collected from Ethiopian government and

private commercial banks publication ―Balance sheets and Income statements analysis for six years (2011 to 2016). It is less expensive in terms of time and money while collecting.

The panel data for this study is obtained from the audited annual financial statements of the concerned commercial banks in Ethiopia and various reports of NBE, MOFEC and CSA. These data includes both bank specific and macroeconomic factors. The bank specific data are obtained from country's central bank (National bank of Ethiopia) which regulates the banking sector of the country and from the head office of each selected commercial banks. Because of their time of formation we used balanced data methods. The macroeconomic variables data were collected from CSA and MOFEC.

3.4 Variables Description and Research Hypotheses

This study will identified determinants of capital structure by using the following dependent and independent variables to addressed objectives that have been set in chapter one and draw the hypothesis derived from theories of capital structure in the light of literature.

3.4.1 Dependent Variable: Hypothesis of study

The dependent variable in the study is the level of leverage /indebtedness/ of commercial banks in Ethiopia. There is no clear cut definition of debt –to- equity ratio in the literature but it depends on the analysis it uses. Definition of leverage ratio is the ratio of total (non-equity) liabilities to total assets (Aremu and Ayanda, 2013). High ROEs are generally positively correlated with high stock prices (Brigham and Houston, 2007). The use of debt, or financial leverage**,** concentrates the firm's business risk on the stockholders (Brigham and Houston, 2007). For the purpose of this research, leverage (indebtedness) measures in terms of total debt to book value of total Assets of individual banks.

3.4.2 Independent variables: Hypothesis of study

1. Profitability

Profitability can be main independent variable that determines capital structure and represent pecking order and trade-off theories quite clearly. As mentioned in literature review that trade-off theory says firms identify the target debt ratio by comparing benefit

from and cost of leverage. Any decrease (increase) in cost (benefit) allows the firm to readjust target leverage by enhancing debt. It is recognized that more profitability in world of tax with more leverage can save more tax for shareholder showing benefit from leverage. Incorporating debt financing in capital structure has an advantage as interest payment are deductible as an expense, which in turn increases the profit of firms (Horn,2001). It means trade-off theory suggests positive relationship between profitability and leverage.

Contrary to trade-off theory, pecking order theory suggests that profitable firm prefer to use retained earnings to finance their current or potential projects. Myers (1984) argues that firms with no profit or insufficient profit prefer to borrow debt and then issue equity securities if requirement for the funds is not fulfilled by debt borrowing. It means pecking order theory predicts negative relationship between profitability and leverage.

Hypothesis 1: Banks' profitability has significantly negative relationship with leverage.

2. Stability of Sales /Growth opportunity/

There are conflicting views found in theories of corporate capital structure regarding the relationship between growth and leverage of the firm. According to pecking order theory the company first finances its projects by internal financing (Ross, et al 2008) that may not sufficient in the condition of growth. So the company should increase its leverage during growth period. Tong and Green (2005) find significant positive relationship between growth and leverage. Which means pecking order theory indicates the positive relationship between growth and leverage.

On the other side growth is increasing cost and probability of financial distress when the company borrowing more debt to support growth opportunities. And increasing cost of financial distress may restrict firm from borrowing more; it means trade-off theory suggests negative relationship between growth and Leverage of firms. Jong et al (2008) and Huang and Song, (2006) showed out the negative relationship between the GTH opportunities and Lev of the firm.

Hypothesis 2: It expects significantly positive relationship between Stability of Sales /Growth opportunity/ of Bank and leverage.

3. Size (Nature) of Banks

Size can be another important determinant of capital structure because literature review shows contradicting views about the relationship between size and debt. Larger firms are more diversified, have less default risk, and lower cost of financial distress (Titman & Wessels, 1988). Therefore according to trade-off theory any decrease in cost of leverage allows the firm to increase leverage thus predicts positive relationship between size and leverage because size of firm diminishes the cost of leverage.

Pecking order theory is interpreted as it predicts negative relationship between size and leverage. Larger firm generates more profit as compared to small firm therefore according to pecking order theory profitable firm prefers internal financing than external one. This suggests that size is negatively related with debt.

Hypothesis 3: Size (Nature) of Banks and Leverage has significantly positive relationship.

4. Dividend

According to pecking order theory, firms with higher profitability are experiencing the lower debt in their capital structure. But it is solely depending upon the dividend policy of the firm. If the firm has low retention ratio (high dividend payout ratio) then firm must issue more debt that will increase the Leverage ratio. POT suggests that firm with higher dividend payout history has fewer amounts to reinvest in business thus indicating positive relationship between dividend payout ratio and Leverage. In the condition of high growth opportunity, POT suggests the low dividend payout. Tong and Green (2005) find the past dividend and Leverage has significantly positive relationship. As mentioned above, Adedeji (1998) suggests that because of reluctance to cut the dividend in the condition of earning shortage, firms borrow to pay the dividend thus indicating the positive relationship between dividend and debt ratio. Baskin (1989) empirically confirms the positive relationship between the dividend and Leverage ratio.

Dividend payment and debt financing can serve as alternatives to address the agency cost of free cash flow problem. Paying dividend can't offer firm any tax benefit while borrowing more not only reduces the agency cost of free cash flow problem but also offers tax shield benefit. Therefore decreasing agency cost and increasing tax benefit may let the firm to borrow more and more leverage may leave fewer amounts with firm to pay dividend. Allen & Mizuno, (1989) find that firm might not wish to pay high dividend in the presence of high fixed charges of financing. Therefore trade-off theory would suggest negative relationship between dividend payout and Lev. Frank and Goyal (2009) point out that the firms that pay dividends have less Leverage as compare to firms those do not paying dividend.

Hypothesis 4: Expect to determine that significantly positive relationship between banks dividend and leverage.

5. Liquidity

Many researchers used liquidity as an independent variable to measure its impact on leverage of the firm. Basically liquidity is the ability of any firm to meet its short term obligation when they become due. Ozkan (2001) reported that higher liquidity ratio implies that a firm has more power to pay its debt as they become due, hence, the firm can structure its financing pattern by taking more debt rather than issuing equity. Yu (2000) also observed that banks with more liquidity have positive impact on leverage. On the other hand, Tong and Green (2005) observed an inverse relationship of liquidity with leverage. This research shows that liquidity has negative relationship with leverage ratio.

Hypothesis 5: Liquidity and leverage expected to have significantly negative relationship.

6. Asset tangibility

ROA increase if the firm used less leverage. A firm with more physical asset can borrow at cheaper cost of debt capital as compare to company with less physical assets. The tangibility of assets offers the bargaining power to company. Framed in the pecking order theory, confirm that tangible assets have a positive impact on management decisions on funding because they are less subject to the problems of information asymmetry and

reduce credit risk (have greater value in the event bankruptcy) - the higher the tangible asset, the greater the indebtedness, because it serves as guarantee on the loan (Brigham and Houston, 2007).

The negative relationship between asset tangibility and Leverage, may infer the results consistent with predictions of market timing theory because if firm has more tangibility and issues equity may indicate mispricing of financial instruments for example overvaluation of shares, undervaluation of bond etc. Other reasons may include cheap cost of equity risk premium, expensive cost of debt. Market timing theory suggests when the stock price in the market is overvalued then based on asymmetric information, the companies issue the equity. Firms buy their own stock when price of stock is perceived undervalued.

Hypothesis 6: It expects an inverse relationship between Banks' Assets tangibility and leverage if Banks have more tangible assets and issue more equity.

7. Net debt tax shield

Deesomsak et'el (2004) stated that in the absence of more accurate measures, the non-debt tax shield is defined as the ratio of depreciation to total assets. As predicted by the trade-off theory, a major motivation for using debt instead of equity is to save corporate tax. However, firms can use non-debt tax shields such as depreciation to reduce corporate tax. Thus, a higher non-debt tax shield reduces the potential tax benefit of debt and hence it should be inversely related to leverage. DeAngelo and Masulis (1980) predict that financial leverage is negatively related to the level of non-debt tax shields. Graham (2000) estimates that the tax benefit associated with funding through debt would raise the value of company at a higher percent and they are positively related.

Hypothesis 7: Net debt tax shield and leverage expected to have significantly positive relationship.

8. Risk

Several measures of volatility are used in different studies, such as the standard deviation of the return on sales (Booth et al., 2001), standard deviation of the first difference in operating cash flow scaled by total assets (e.g., Bradley et. al., 1984; Chaplinsky and Niehaus, 1993; and Wald, 1999), or standard deviation of the percentage change in operating income (e.g., Titman and Wessels, 1988). All these studies find that business risk is negatively correlated with leverage. In this study, we follow Titman and Wessels (1988) in using standard deviation of earnings before interest and tax to measure volatility.

Hypothesis 8: Expect to determine that significantly Negative relationship between banks risk and leverage.

9. Economic growth/GDP/

One of the most used external determinants of capital structure is Gross Domestic Product (Dincergok & Yalciner, 2011; Camara, 2012). They find that there is a negative and significant relation between corporate capital structure and GDP (as well as GDP growth). Gajurel (2006) also argues that there is a negative relation with total debt ratio and short-term debt ratio, but there is a positive influence on the long-term debt ratio.

Hypothesis 9: there is significantly negative relationship between Economic growth (GDP) and leverage.

10. Inflation

Inflation is macroeconomic variable that has impact on price of debt and equity. Whenever the inflation is increasing the creditors demand more interest rate, on the funds they have furnished to organization in order to balance the opposite effect of inflation that diminishes purchasing power of currency of the country. This means there is positive relationship between the inflation and cost of debt. Hatzinikolaou et al (2002) argue that inflation uncertainty put forth a strong negative effect on capital structure of the firm. Issuing debt at higher cost may increase the costs of financial distress. Therefore trade-off theory suggests the negative relationship between inflation rate and leverage.

Market timing theory says that firm issues the debt when the interest on the debt is low as compared to past and future expected interest rate. Frank & Goyal, (2009) find that when firm expects that the inflation rate will be higher in future or realizing the current rate of inflation is low, the companies issuing debt securities. But prediction about the future interest rate depends on inflationary trend in economy. It means if firm expect more inflation in future it will amplify the probability of enhancing the interest rate thus firm may not delay in issuing debt. This shows that market timing theory suggests positive relationship between inflation and debt if it is expected that future inflation will be more.

Hypothesis 10: It expected that there is significantly positive relationship between inflation and leverage.

Hypothesis	Variables	Definitions	Trade-off theory	Pecking order theory	Market Timing Theory	Agency cost theory	Expected sign
1. Dependent variable							
H	LEV	Total debt / Book value of total Assets					N/A
2. Independent variables							
H1	PROF	Net Income / Book value of total Assets	+	–			–
H2	GRZ	Book value of total asset at current period less previous period / Book value of total assets previous period	–	+			+
H3	SIZ	= Ln (total assets)	+	–			+
H4	DIV	Dividend payment / Total equity	–	+		–	+

H5	LIQ	Current Assets = ……. Current Liability					−
H6	ATN	Net Fixed Asset = …… Book value of total Assets		+	−		−
H7	NDTS	Depreciation = ……. Total Assets	+				+
H8	RS	= STD of ROA	−				−
H9	GDP	= Ln (total gross domestic product)					−
H10	INF	= change in consumer price index	−		+		+

3.5 Regression Analysis

This study is using the panel data. Panel data take into consideration both: time series features and cross section features. This means panel data considers multiple variables for multiple periods of times to draw the true picture of relationship between variables. Panel data has many advantages over time series and cross sectional sets of data. It enhances the level of freedom and decreases level of co-linearity among independent variables.

3.5.1 Regression Model Specification

The nature of data used in this study enabled to use panel i.e. longitudinal data model which is deemed to have advantages over cross sectional and time series data methodology. Panel data involves the pooling of observations on the cross-sectional over several time periods.

To do this using pure time-series data would often require a long run of data simply to get a sufficient number of observations to be able to conduct any meaningful hypothesis tests. But by combining cross-sectional and time series data, one can increase the number of degrees of freedom, and thus the power of the test, by employing information on the dynamic behavior of a large number of entities at the same time. This section present the

basic conceptual model of the research i.e. the dependent variable is determined by those independent variable;

LEV = f (PROF, GRZ, SIZ, DIV, LIQ, ATN, NDTS, RS, INF, GDP) …… (1)

Where:-

LEV capital structure measured using ten variables: Which is the ratio of total debt to book value of total Assets of banks.

PROF profitability of banks measured in terms of return on assets**.**

GRZ is the ratio of the difference between total assets of the Current period and the previous period to the current period.

SIZ size of banks measured the logarithm of total assets of the current year

DIV dividend ratio of the bank measured in terms of dividend payout of the year to total owners' equity.

LIQ liquidity measured the ratio of bank's current assets to short term loan and deposit during the period.

ATN asset tangibility of bank measured the net fixed assets of the bank to total assets of the bank during the period.

NDTS net debt tax shield of banks measured by Depreciation divided by total assets.

RS risk of banks Measured in terms of standard deviation of operating income before tax and interest expense.

INF Inflation for the year measured consumer price index of the country.

GDP Gross domestic product measured the logarithm of the total gross domestic product of the country during the period.

The nature of data used in this study enabled to use panel i.e. longitudinal data model which is deemed to have advantages over cross sectional and time series data methodology. Panel data involves the pooling of observations on the cross-sectional over several time periods. The general form of the panel data model can be specified more compactly as:

$$\mathbf{Lev_{it} = ß_{oi} + ßX_{it} + u_{it}} \text{ ..... (2)}$$

Where:-

Lev_{it} = the measure of leverage of bank at time

$ß_{oi}$ = the intercept of equation for bank

ß = Coefficient for X_{it}

X = independent variables for leverage

u = error term

i = number of banks i.e. = 1, 2, 3……N

t = the time period i.e. = 1, 2, 3…… T

The specification of formula to analyze the panel data in this study is as follows.

$$\mathbf{Lev_{it} = ß_{oi} + ß_1 Profitability_{it} + ß_2\ Growth_{it} + ß_3 Size\ (Nature)\ of\ Banks_{it} + ß_4 Dividend_{it} + ß_6 Liquidity_{it} + ß_5 Asset\ tangibility_{it} + ß_7 Net\ Debt\ Tax\ Shield_{it} + ß_8 Risk + ß_9 Inflation_{it} + ß_{10} GDP_{it} + u_{it}} \text{ ..... (3)}$$

Where

Lev_{it} = the measure of debt of a bank at time

$ß_{oi}$ = the intercept of equation for bank

$ß_1$Profitability = Coefficient of profitability

$ß_2$ Growth= Coefficient of Stability of Sales /Growth/

$ß_3$Size (Nature) of Banks = Coefficient of Size (Nature) of Banks

$ß_4$Dividend = Coefficient of Dividend

$ß_5$Liquidity= Coefficient of Liquidity

$ß_6$ Asset tangibility = Coefficient of Value of firms

$ß_7$Net Debt Tax Shield= Coefficient of Net Debt Tax Shield

$ß_8$Risk = Coefficient of Risk

$ß_9$Inflation = Coefficient of Inflation

$ß_{10}$GDP = Coefficient of GDP

u_{it} = error term of a bank at time

We used only one proxy for dependent variable leverage. The equation show total debt that will determine by the impact of independent variables on total debt in each bank. we use to know the bank effect base on special features such as Profitability, Growth, Size (Nature) of Banks, Dividend, Liquidity, Asset tangibility, Inflation, and GDP by classifying banks into government and private namely:

3.5.2 Model assumptions

The assumptions on classical linear regression model (CLRM) were tested to determine whether the collected data would fit the assumptions in order to use Ordinary Least Squares (OLS) technique. Consequently, the following basic CLRM assumptions were tested in this study to make the data ready for analysis and to get reliable results from the research:

1. **Errors have zero mean**: According to Brook (2008) this assumption will not be violated if a constant term is included in the regression equation. It deals with average of the error should be zero.

2. Homoscedasticity ***(variance of the errors is constant (Var (ut) = σ2<∞)***: the second assumption of the classical linear regression model is heteroscedasticity. It is a systematic pattern in the errors where the variances of the errors are not constant, Gujarati (2004). The residual variance is constant which referred to homoscedasticity which is desirable. White test was used to check the absence of heteroscedasticity**.** He added that if the p-value is very small, less than 0.05, it is an indicator for the presence of heteroscedasticity.

3. Autocorrelation (Covariance between the error terms over time is zero (cov (ui,uj) = 0.): this assumption indicates that the covariance between the error terms over time is zero. It also assumed that the errors are uncorrelated each other. If the errors are correlated with one another, it is stated that they are autocorrelated. According to Brook (2008) the test for the existence of autocorrelation is made using the Durbin-Watson (DW) test and Breusch - Pagan test. On this paper the researcher used only the Durbin–Watson test to identify the presence of autocorrelation.

Brooks (2008), noted that DW has two 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.

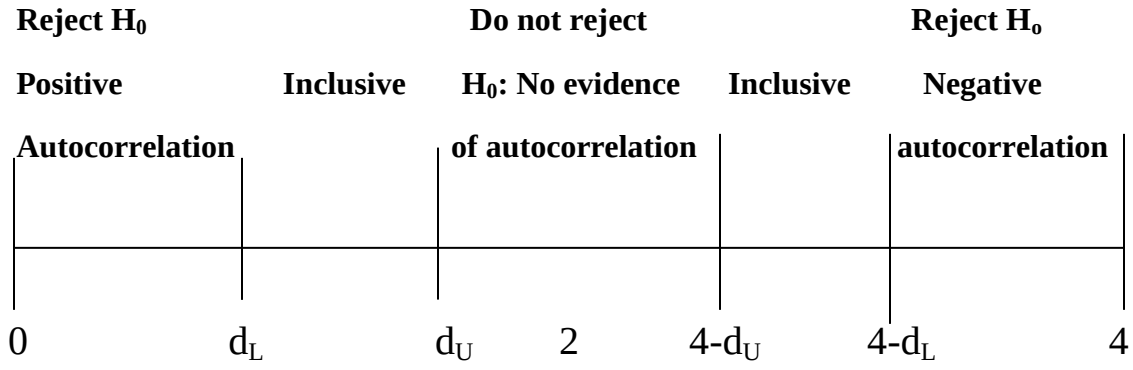


Figure 3.1 Rejection and Non-Rejection Regions for DW Test

The rejection, non-rejection, and inconclusive regions are shown on the number line in figure 3.1. So, the null hypothesis is rejected and the existence of positive autocorrelation presumed if DW is less than the lower critical value; the null hypothesis is rejected and the existence of negative autocorrelation presumed if DW is greater than 4 minus the lower critical value; the null hypothesis is not rejected and no significant residual autocorrelation

is presumed if DW is between the upper and 4 minus the upper limits; the null hypothesis is neither rejected nor not rejected if DW is between the lower and the upper limits, and between 4 minus the upper and 4 minus the lower limits.

4. Multicollinearity: According to Gujarati (2004), in the case of multicollinearity, there is linear relationship between explanatory variables, which may cause the regression model to be biased. It is difficult to identify the impact of individual independent variables if there is a strong correlation between explanatory variables. In this research, to determine the possibility of degree of multicollinearity, Pearson correlation matrix is used. Malhotra (2007) stated that if the correlation between two independent variables is more than 0.75, it is assumed that there is multicollinearity.

5. Normality: According to Gujarati (1995), normality test is one of the regression analyses of classical linear regression assumptions. The normality assumption is about the mean of the residuals is zero. Therefore the study followed graphical methods of testing the normality of data. It's important that the residuals from the regression models should follow the normal distribution. According to Pallant (2013), applying the rule of thumb of dividing each value by its standard error give both well within ± 1.96 limits, which suggest that the departure from normal is not extreme.

6. Hausman test: this test helps us to identify which model approach, i.e. Random effect or fixed effect model, is suitable for panel data regression analysis.

Chapter Four

Results and Discussions

This chapter deals with the results and analysis of the findings. Section 4.1 deals with descriptive statistics of the variables, section 4.2 presents the result of the fulfillment of the classical linear regression model (CLRM) assumptions, 4.3 presents the regression results and discusses the findings.

4.1 Descriptive statistics

Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables for thirteen private and one Government commercial banks from year 2011 to 2016 with a total of 84 observations. The Descriptive statistic table includes the mean, standard deviation, number of observations, minimum and maximum for the independent and dependent variables used in this research. It shows the average indicators of variables computed from the financial statements of balanced data of banks.

Table 4.1 Descriptive statistics

Variables	Observation	Mean	Std. Dev	Minimum	maximum
LEV	84	85.50	4.68	65.41	95.59
PROF	84	5.66	1.38	-0.63	10.05
GRZ	84	52.57	98.94	-7.87	422.60
SIZ	84	388.89	51.12	265.99	538.53
DIV	84	9.94	13.99	-4.02	68.59
LIQ	84	1.16	7.66	0.84	1.49
ATN	84	2.08	1.23	0.00	6.42
NDTS	84	0.21	0.12	0.00	0.64
RS	84	1.98	1.22	0.91	5.28
GDP	84	9.82	0.99	8.50	11.40
INF	84	14.82	9.50	7.40	34.10

Source: Stata out-put

Table 4.1 shows a mean value of 85.50% for Leverage indicating that those selected commercial banks in Ethiopia have 85.50% of their capital structure was debt with 4.68% variability ups and downs for the period from year 2011 to 2016. As stated in chapter two, this study used total debt and total assets to calculate leverage ratio. The figure indicated that Ethiopian banking industry is a highly levered. On average, they included 86% debt in the capital structure. The minimum requirement of equity share in Ethiopian banking industry is 8%, the finding shows 14.50%, so that there is a tendency of insolvency.

Profitability of banks measured in terms of return on asset shows the banks productivity to generate income using the available asset. The figure shows that selected commercial banks in Ethiopia have generated on average 5.66% profit for a one birr investment on asset, the most profitable banks have generated 10.05% profit and the least profitable banks have loss of 0.63% for each birr investment with a variability is 1.38%. The high range of profitability demonstrates existence of great variation among commercial banks in Ethiopia for the study period. The reason for high range of profit among banks came from their service age or establishment time, which in turn gave large market coverage for profit.

The growth rate shows that Ethiopian commercial banks revenue have increased in the last six years from 2011 to 2016 on average by 52.57% with a variability of 98.94 percent ups and downs. The most grown banks exhibited 422.60% and the least grown bank was loss of 7.87%. Growth in total asset indicates that the existence of high variation in growth rate among banks for the study period 2010/11 to 2015/16. The average result of high growth rate exhibited indicates that the banking industry has a potential for further investment. As the growth rate get higher the bank can reputation and more stable cash flows, lesser hazards to be liquidated and their chance of bankruptcy are less as compared to small growth rate banks.

The study variable, size measures logarithm of commercial banks' total assets. The anti-logarithm figure on table 4.1 shows fourteen commercial banks in Ethiopian have a mean value of 488.57 million birr with a standard deviation of 16.67 million birr. Bank size ranges between 142.95 million birr and 2,181.76 million birr. Once again, this reveals existence of great variation in the size of commercial banks in Ethiopia for the study. As

the size of banks become bigger, creditors become confidence to save their money and this may affect free market computation among banks and may result to acquisition or liquidation or merger of recently established small banks in the future.

The dividend paid by banks shows average value of 9.94% of the owner equity with a variability of 13.99% ups and downs. This figure shows Ethiopian commercial banks have retained 90.06% of their revenues to their capital tide up. The highest dividend declared was 68.59% and the least was -4.02% with the variability of 13.99%. This further asserts that the existence of high variation in dividend payment among commercial banks in Ethiopia. This shows that the dividend paid during the study period were 10% of their equity share. This indicates dividend ratio in Ethiopia higher interest paid to depositors implies the banking industry was high dividend paid industry. The minimum dividend ratio results because of accumulation of dividend declared but not paid to preference shareholders or banks were collected for additional investment from any type of shareholders.

As for liquidity, it showed a mean of 1.16 ratios of current assets to current liability, 7.66 percent standard deviation. For selected banks, liquidity ranges between 0.84 and 1.49 fold of current assets to current liability. This indicates that there is high variation in the level of liquidity among commercial banks in Ethiopia. On average the banking industry has a potential to cover short term debt and deposit. According to Brealy and Myres(2003), a firm is solvent if it has a minimum of one to one proportion between current asset and current liability. But banks which exhibited the minimum result of liquidity should adjust the loan and saving accounts.

Asset tangibility, measured by fixed asset to total asset, shows that on average, 2.08 percent of the banks' assets are fixed. The ratio of fixed assets to total asset for selected bank ranges between 0.0044 percent and 6.42 percent with standard deviation of 1.23 percent. The result indicates that there is high range of variation among commercial banks in Ethiopia for the study period.

Net debt tax shield measured in term of depreciation to total assets for the bank had an average of 0.21% tax coverage on debt investment with 0.12% ups and down variation

among commercial banks in Ethiopia. The variable ranges from zero to 0.64% during the study period 2011 to 2016. The tax paid back to banks due to debt incorporation to capital formation had been higher during the study period.

Concerning, the bank risk was measured by the standard deviation of operating income (Volatility of earning). The mean of this variable was 1.98% and the range between 0.91% and 5.28% with standard deviation 1.22%. This shows that banks vary in adopting risk. This reveals that Ethiopian Commercial banks revenue has shown a volatility rate of 1.98% in the last six years from 2011 to 2016.

The average value for inflation has become 14.82% with a variation of 9.50% ups and down. The range of inflation runs from 7.4% to 34.10%. GDP also has an average 9.82% of the logarithm of gross domestic product of the year. It is indicating that the average real growth rate of the country's economy over the past 6 years. It's maximum and minimum values are 11.40% and 8.50% respectively with a standard deviation of 0.99% ups and down. This also shows that there is high variation during the study period in the country.

4.2 Correlation matrix of dependent and independent variables

Table 4.2 below shows the degree of correlation/association between the dependent variable i.e. leverage and the other ten independent variables of banks capital structure.

Size of banks has strong positive relationship with dependent variable, leveraged as compared with other variables with a coefficient value of 0.7306. Dividend also has strong positive relationship with leverage with a coefficient of 0.5378. This means that previous year size of bank had significant influence on the current year. One percent increases in size results 0.7306 percent increase in leverage. Dividend also has positive relationship with leveraged next to size with a coefficient value of 0.5378. The other variable, Liquidity has strong but negative relationship with leveraged with a coefficient value of -0.8669.

When the liquidity of a bank increases by one birr lead to leverage will decrease by approximately 87 cents, because more liquid banks tend to invest on equity than debt. Profit has a positive relationship with leverage but the coefficient value of 0.2961. The other variables assets tangibility, net debt tax shield, risk, GDP and inflation have negative

relationship to leverage with a coefficient value of -0.1022, -0.0546, -0.0720, -0.2631, -0.1376, and -0.0752 respectively.

Table 4.2 Correlation matrix of dependent and independent variables

	LEV	**PROF**	**GRZ**	**SIZ**	**DIV**	**LIQ**	**ATN**	**NDTS**	**RS**	**GDP**	**INF**
LEV	1.0000										
PROF	0.2961	1.0000									
GRZ	-0.1022	-0.0264	1.0000								
SIZ	0.7306	0.1763	0.0033	1.0000							
DIV	0.5378	0.1409	-0.0814	0.6760	1.0000						
LIQ	-0.8669	-0.1749	-0.1031	-0.6491	-0.3092	1.0000					
ATN	-0.0546	-0.0777	0.2668	0.0716	-0.1764	-0.2048	1.0000				
NDTS	-0.0720	-0.0366	0.2734	0.0428	-0.1808	-0.1173	0.6839	1.0000			
RS	-0.2631	-0.2018	0.0494	-0.4426	-0.1930	0.2557	0.0520	0.0704	1.0000		
GDP	-0.1376	-0.0355	0.0253	-0.1856	-0.0008	0.1728	-0.1584	-0.1593	-0.0000	1.0000	
INF	-0.0752	0.1049	0.0147	-0.2489	0.0665	0.1701	-0.2040	-0.1846	0.0000	-0.2234	1.0000

Source: Stata out-put

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

As we mentioned in chapter three, this research carried out the diagnostic tests to be sure that the data fits the basic assumptions of classical linear regression model.

4.3.1 The errors have zero mean ($\epsilon = 0$)

This assumption will never been violated if the constant term is included in the regression equation (Brooks, 2008). So that the constant term is included and the assumption not violated.

4.3.2 Test for Homoscedasticity: (Breusch - Pagan)

The assumption of this test is the variance of the errors to be constant. The assumption of homoscedasticity has been violated if the error does not have constant variance. The violation of the assumption termed as heteroscedasticity. In this study Breusch - Pagan test was used to test for existence of heteroscedasticity across the range of explanatory variables.

Table 4.3 : Breusch – pagan test for heteroskedesticity

Source	SS	d.f	MS
Model	0.178348792	10	0.017834879
Residual	0.00332972	73	0.000045613
Total	0.181678512	83	0.002188898

R-squared	= 0.9817	H0: Constant variance	
Adj R-squared	= 0.9792	F (10, 73)	= 391.01
Chi2 (10)	=9.43	Prob> chi2	= 0.4914

Source: Stata out-put

The result in table 4.3 above shows, the F-stat and chi^2 of the test statistic give the same conclusion that reveals the null hypothesis is not rejected. This show absence of heteroscedasticity,

4.3.3 Tests of Autocorrelation: (Dubrin - Watson test)

This is an assumption that the errors are linearly independent of one another (uncorrelated with one another). If the errors are correlated with one another, it would be stated that they are auto correlated. The Durbin Watson test statistic value from the regression result is 1.821040. There are 84 yearly observations in the regression and eleven regresses including the intercept.

Table 4.4: Breusch – pagan test for autocorrelation

Source	SS	df	Ms
Model	0 .73616458	10	0 .73616458
Residual	0.003009512	73	0.000041226
Total	0.739174092	83	0.008905712

Durbin-Watson statistic (original)	1.254597	F (10, 73)	= 1785.67
Durbin-Watson statistic (transformed)	1.821040	Prob > F	= 0.0000
		R-squared	= 0.9959
		Adj R-squared	= 0.9954

Source: Stata out-put

According to DW statistics table, the relevant critical values for the test at 5% significance level were dL = 1.396 and, dU = 1.916. The DW statistics result of 1.821040 is above the lower level but below the upper level. Therefore, it falls in the inclusive region and the null hypothesis is not rejected. The test result indicated above shows the null hypothesis of no autocorrelation is not rejected, since it is above 5% significance level.

4.3.4 Test for Multicollinearity:

In this test explanatory variables are with the assumption not to be correlated. On the other hand if the variables are not uncorrelated with one another, it will be the violation of the Classical Linear Regression Model assumption of multicollinearity. The study uses correlation matrix of independent variables to detect any multicollinearity problem in the regression model or to test independency of explanatory variables. Multicollinearity

problems exists when the correlation coefficient among independent variables are greater than 0.75. As the table 4.4 below shows that there is no correlated variable with correlation value is 0.75 and above.

Table 4.5 Correlation matrix of dependent and independent variables

	LEV	**PROF**	**GRZ**	**SIZ**	**DIV**	**LIQ**	**ATN**	**NDTS**	**RS**	**GDP**	**INF**
LEV	1.0000										
PROF	0.2961	1.0000									
GRZ	-0.1022	-0.0264	1.0000								
SIZ	0.7306	0.1763	0.0033	1.0000							
DIV	0.5378	0.1409	-0.0814	0.6760	1.0000						
LIQ	-0.8669	-0.1749	-0.1031	-0.6491	-0.3092	1.0000					
ATN	-0.0546	-0.0777	0.2668	0.0716	-0.1764	-0.2048	1.0000				
NDTS	-0.0720	-0.0366	0.2734	0.0428	-0.1808	-0.1173	0.6839	1.0000			
RS	-0.2631	-0.2018	0.0494	-0.4426	-0.1930	0.2557	0.0520	0.0704	1.0000		
GDP	-0.1376	-0.0355	0.0253	-0.1856	-0.0008	0.1728	-0.1584	-0.1593	-0.0000	1.0000	
INF	-0.0752	0.1049	0.0147	-0.2489	0.0665	0.1701	-0.2040	-0.1846	0.0000	-0.2234	1.0000

4.3.5 Test for Normality:

If the residuals are normally distributed, the histogram should be bell-shaped and the Bera-Jarque statistic would not be significant (Brooks, 2008). Normality distribution of the study confirmed by result of Skewness and Kurtosis.

The normality tests for this study as shown in table 4.6 that the coefficients of both Kurtosis and Skewness are close to 1.

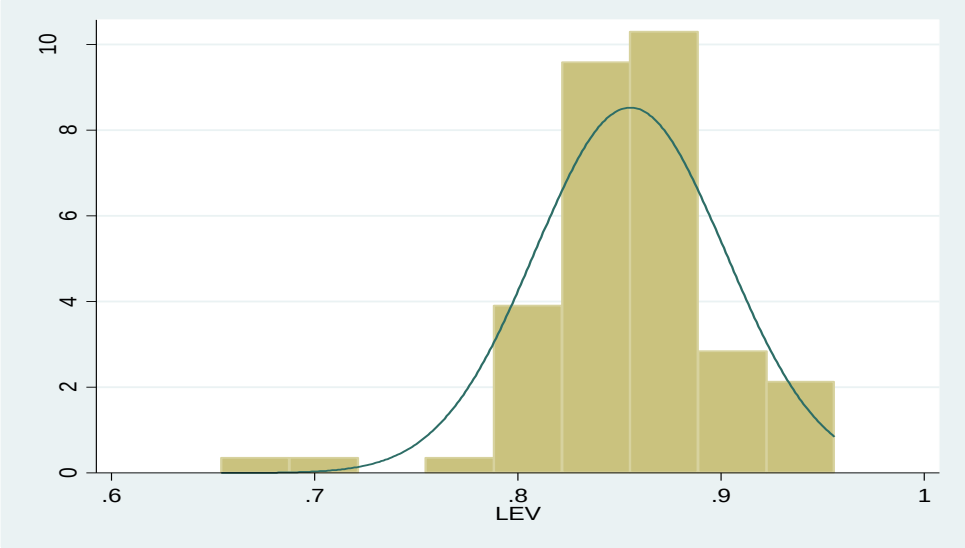
Table 4.6: Normal test table

Variables	Observation	Pr(Skewness)	Pr(Kurtosis)	adj $Chi^2(2)$	$Prob>Chi^2$
LEV	84	0.0012	0.0002	19.11	0.0001
ROA	84	0.0034	0.0000	19.48	0.0001
GRZ	84	0.0000	0.0000	54.82	0.0000
SIZ	84	0.0518	0.0621	6.70	0.0351
DIV	84	0.0000	0.0000	49.68	0.0000
Liq	84	0.0722	0.0000	18.48	0.0001
ATN	84	0.0000	0.0055	19.46	0.0001
NDTS	84	0.0000	0.0059	19.48	0.0001
RS	84	0.0000	0.0215	21.42	0.0000
GDP	84	0.7483	0.0000	13.53	0.0012
INF	84	0.0001	0.6433	13.40	0.0012
Total		0.8770	0.7385	255.56	0.0380

Source: Stata out-put

Accordingly on survey result shows on table 4.6 above, related to determinants that affect capital structure formation on commercial banks in Ethiopia indicates that a minimum 0.0000 and maximum 0.7483 of Skewness and a minimum 0.0000 and maximum 0.6433 of Kurtosis with in the acceptable level of ± 1.96 limits. This confirms that the normality of the data in this study was within accepted level.

Figure 4.1: Normality test



Source: Stata out-put

The normality graph above also shows that the distribution was normal, but the positive and negative skewness had a little bet difference. The kurtosis which is measured by the peakedness or flatness of the distribution was showed a perfect normal.

4.4 Regression results and Discussion

This study used panel data regression. According to Brooks (2008), there are two types of panel data estimator approaches that can be applied for the research model. These are fixed effect and random effect model. Hausman specification test helps to identified whether individual effects are fixed or Random. In this study the specification test providing evidence in favor of the Random effect model as presented in Table 4.7 p-value is greater than 5% that is significant at 99%, therefore, the random effect model is appropriate.

Table 4.7: Hausman fixed random test

Test	Chi-sq statistic	Chi-sq d.f	Probability
Result	**2.05**	**83**	**0.9906**

Source: Stata out-put

4.4.1 Determinants of Leverage

The aim of regression model in this study is to determined factors which significantly influence the formation of capital structure of commercial banks in Ethiopia. There are ten explanatory variables. Audited financial statements of fourteen commercial banks for the period 2011 to 2016 were used. Leverage was the only dependent variable whereas profitability, growth, size, dividend, liquidity, assets tangibility, net debt tax shield, risk, inflation and GDP were used as independent variables. Therefore the random effect model panel data regression technique was used based on Hausman test result.

The regression model:

$$Lev_{it} = ß_{oi} + ß_1 PROF_{it} + ß_2 GRZ_{it} + ß_3 SIZ_{it} + ß_4 DIV_{it} + ß_5 LIQit + ß_6 ATN_{it} + ß_7 NDTSit + ß_8 RSit + ß_9 GDP_{it} + ß_{10} INF_{it} + u_{it}$$

Where:

Lev ……..... Leverage

PROF ……..... Profitability

GRZ ……... Growth of Bank

SIZ ……. Size of bank

DIV ……..... Dividend

LIQ ……..….. Liquidity

NDTS …… Net Debt Tax Shield

ATN …….…… Assets tangibility

RS ……. Risk

GDP …….. Gross domestic product

INF …… Inflation

U …… Error term of the model

I ……. Cross section dimension, refers banks

T ……..... Time series dimension, refers number of years

The regression result with respect to random effect model presented below under the table 4.8. The model presented both the dependent variable (Leveraged) and the explanatory variables. As stated by Brooks (2008), The R-square value measures how well the regression model explains the actual variations in the dependent variable.

The adjusted R^2 value in table 4.8 below indicates that 97.92% of the total variability of leverage of commercial banks in Ethiopia captured by the variables in the regression model. The independent variables, profitability, growth, size of bank, dividend, liquidity, assets tangibility, net debt tax shield, risk, gross domestic products and inflation explain 97.92% of the change in capital structure in Ethiopian commercial banks for the study period from year 2011 to 2016. The regression F-statistic (2957.56) and the p-value of zero attached to the test statistic reveal that the null hypothesis that all of the coefficients are jointly zero should be rejected.

Thus, it implies that the independent variables in the model were able to explain variations in the dependent variable. The next section of the research presents the result of the study. Derivation of the model from regression result based on the coefficient of the variables shown below:

LEV = -0.0661821ROA + 0.0024779GRZ + 0.006572SIZ + 0.04884291DIV – 0.620665LIQ – 9.339711ATN + 85.29656NDTS + 0.0699869RS + 0.1297323GDP + 0.0147379 INF

Table 4.8: Regression Result- Random Effect Model

Variables	Coefficient	Std. Error	t-statistics	Probability
ROA	-.0661821	.0659826	-1.00	0.316
GRZ	.0024779	.0013532	1.83	0.067
SIZ	.006572	.0041686	1.58	0.115
DIV	.04884291	.0115603	4.19	0.000
LIQ	-.620665	.0162549	-38.18	0.000
ATN	-9.339711	.443167	-21.07	0.000
NDTS	85.29656	4.38274	19.46	0.000
RS	.0699869	.1223065	0.57	0.567
GDP	.1297323	.0849806	1.53	0.127
INF	.0147379	.0101273	1.46	0.146

R-squared	0.9817
Adj - R-squared	0.9792
Durbin- Watson stat	1.821040
F- Statistics	2957.56
Prob (F-Statistics)	0.0000

Source: Stata out –put

Profitability:

Hypothesis 1 of the study stated that there is a negative and significant relationship between banks' profitability and leverage ratio. But the result in the regression on table 4.8 indicate that there is a negative and insignificant relation exist to determined capital structure of banks in Ethiopia for the study period from the year 2011 to 2016 so that **Hypothesis 1 is rejected**. The finding also supported by pecking order theory which state there is a negative relationship between firm's profitability and leverage. An increase or decrease in profitability doesn't have any effect on capital structure formation of

commercial banks in Ethiopia. The study shows higher profit increase the level of internal financing. This implies that profitable commercial banks in Ethiopia accumulate internal reserves and prefer to use less debt or they were depends more on internally generated fund rather than external funds.

The result of the research is similar with empirical studies finding of Aremu and Ayanda (2013), Nyamora (2012), Amjad et'el (2013), Sen and Pattanayak (2005; 2009), Amidu (2007), Ali *et al.* (2011) and Weldemikael (2012) which stated that a negative and insignificant relationship between profitability and leveraged.

Bank Growth:

As shown in table 4.8 growths of banks has positive and significant with 0.0024779 value coefficient, 0.0013532 standard deviation and 1.83 of t-value of relationship with leverage exist. The increase in growth of banks has statistical significant positive effect on commercial banks in Ethiopia for the study period. One unit increase in growth is result 0.0024779 unit increase in leverage ratio of banks. The hypothesis of the study states that bank growth has a positive and significant effect on leverage ratio. **Therefore, hypothesis 2 is not rejected.** The positive and significant relation shows that highly growth banks prefer to use debt investment to expropriate wealth of banking industry.

The finding is supported by the pecking order theory; there is a positive significant relationship between firms' growth and leverage ratio. Previous empirical studies have found similar results about the relationship of growth with leverage. For instance, in the work of Nyamora (2012), studied determinants of Capital Structure in Kenyan Banking Sector empirically and Fenty Fauziah, Rusdiah Iskandar (2015), explore the factors determining the capital structure of the banking sector companies listed in Indonesia Stock Exchange for the period of 2012-2014, had observed a positive and significant relationship between growth and leverage.

Size:

Size of bank measured in terms of the logarithm of total assets. As shown in table 4.8 sizes of banks also has positive and insignificant with 0.006572 value of coefficient, 0.0041686

standard deviation and positive 1.58 t-value with a probability of 11.5% relationship with leverage. Hypothesis of the variable expected that Size (Nature) of Banks has significant and positive relationship with Leverage. **Therefore, hypothesis 3 is rejected.** The finding is parallel with the trade – off theory, which stated that size and leverage are positively related. One reason is that, larger banks' are more diversified and hence have lower variance of earnings, enables them to manage higher debt ratios. On the other hand, smaller banks may find it relatively mare costly to resolve issues of information asymmetries with the providers of capital debt, thus may present lower debt ratio. But on this study, an increase or decrease on the size of bank has no effect on bank's leverage ratio.

Empirical studies have showed a positive relationship between size and leverage. Aremu and Ayanda (2013), Nyamora (2012), AL-Mutairi and Naser (2015), Amjad et'el (2013), and Ali *et al.* (2011), identified a positive and statistically significant relation between bank size and leverage ratio. The result shows that large sized commercial banks in Ethiopia can diversify their capital mix. The reason is the debtor consider such type of firms have less default risk and lower cost of financial distress (Titman & Wessels, 1988). The result also supported by the Bankruptcy Cost Theory that large firms are more diversified and as such, have easy access to the capital market, receive higher credit ratings for debt issues, and pay lower interest rate on debt capital hence they are less prone to bankruptcy.

Dividend:

The dividend payout ratio is measured by the dividend paid during the period to the owners' equity of the bank. As shown in table 4.8, dividend payout has a positive and significant relationship with leverage. The increase or decrease in dividend payment has statistical significant effect on leverage ratio of commercial banks in Ethiopian for the study period of 2011 to 2016. The explanatory variable hypothesis states that it has a significant positive relationship with leverage ratio. **Therefor the hypothesis 4 is not rejected.** One unit increase or decrease on the explanatory variable, dividend will result in 0.0488 unit increase or decrease in leverage ratio of commercial banks on the same direction.

Pecking order theory suggests that firm with higher dividend payout history has fewer amounts to reinvest in business thus indicating positive relationship between dividend payout ratio and leverage of banks. Similarly empirical evidences from Aremu and Ayanda (2013), , studied determinants of Capital Structure in Nigerian Banking Sector empirically had showed that dividend Pay-out ratio is significantly and positively related to Leverage.

Liquidity:

Liquidity measured the ratio of current assets with current liability of bank. The hypothesis of explanatory variable was expected to have significant and negative relationship. The result table 4.8 reveals that liquidity has a negative and statistically significant relationship with leverage. This implies that the increase or decrease in liquidity has statistical significant effect on leverage ratio on commercial banks in Ethiopian for the study period. **Therefor hypothesis 5 is not rejected.** This implies that, one unit increase in liquidity ratio will result 0.620665 unit decreases in leverage ratio and the vise verse is true.

The possible reason for statistically significant and negative relationship between liquidity and leverage ratio could be banks by their nature requires to maintain high liquidity in order to avoid insolvency problem due to large sum of their assets is made up from deposit and this deposit could be with draw on at any time. Highly liquid firms use internal resources instead of external to finance their projects.

Empirical evidence shows mixed results about the relationship between liquidity and leverage. Aremu and Ayanda (2013), Siam *et al.* (2005) and Weldemikael (2012) conducted their study in banking industry have found similar a negative and significant relationship like the current study between liquidity and leverage.

Asset tangibility:

Asset tangibility measured by the ratio of net fixed assets of the bank to book value of total assets. The result of asset tangibility variable as shown in table 4.8 indicated that it has a negative and statistically significant effect on leverage with a coefficient of -9.339711, standard deviation of 0.443167, a negative 21.07 t- value. Hypothesis of independent variable, asset tangibility, stated that an inverse and significant relationship between

Banks' Assets tangibility and leverage. **Therefore hypothesis 6 is not rejected**. This finding is supported by Market Timing Theory, stated as negative relationship between tangibility and leverage if firms have more tangible assets and issue more equity. The finding shows that the increase or decrease in assets tangibility has statistical significant effect on leverage ratio of commercial banks in Ethiopian for the study period. An increase in asset tangibility will result in a decrease in leverage ratio. This shows that Ethiopian commercial banks with a higher proportion of fixed assets were not financed by debt capital. The reason could be that higher proportions of banks' fixed assets denote less operating risk; therefore, the banks may not be exposed to more risk from the use of more debt capital.

This finding is similar to the finding of, Aremu and Ayanda (2013), Nyamora (2012), AL-Mutairi and Naser (2015), Amjad et'el (2013), Weldemikael (2012), assets tangibility inversely related to Bank Leverage ratio. But on the contrary Ali *et al.* (2011), studied factors affect the capital structure of 22 commercial banks in Pakistan during the period 2006-2010. They found a negative and significant relationship between bank's leverage and asset tangibility.

Net Debt Tax Shield

Net debt tax shield measured by the ratio of depreciation to of the bank to book value of total assets. The regression result in the table 4.8 shown, that the variable net debt tax shield has a positive and statistically significant effect on leverage of commercial banks in Ethiopia with a coefficient of 85.29656, standard deviation of 4.38274, a positive 19.46 t-value. The hypothesis of explanatory variable, net debt tax shield was expected to have significant and positive relationship with leverage. **Therefor Hypothesis 7 is not rejected**. This result supported by trade-off theory that leverage and net debt tax shield have significantly positive relation. One unit increase or decrease in net debt tax shield will result 85.29656 unit increase or decrease of leverage ratio on the same direction. This implies that with increased cost of borrowing and perceived risk of bankruptcy are likely to have looked for alternative ways of minimizing tax.

Modiliani and Miller (1963) and Miller (1977) proposed that interest tax shield affect a firm's capital structure. Commercial banks would prefer debt rather than equity to gain more from taxable income for the study period.

Net debt tax shield appear to significance influence on the leverage decision supported by an empirical study of Deesmsok et, al (2004), evidence from the Asia Pacific Region Banks, Nyamora (2012), analyzed the determinants of capital structure of Commercial banks in Kenya the results show a positive and statistically significant relation between net debt tax shield and leverage.

Risk

Table 4.8 shows that the variable risk has a positive and insignificant effect on leverage ratio of commercial banks in Ethiopia for the study period 2011 to 2016. Risk is measured by the standard deviation of return on assets of banks. This implies that the increase or decrease in variability has not statistical significant effect on leverage ratio for the study period. The hypothesis of explanatory variable stated that there was significantly Negative relationship between banks risk and leverage. **Therefor the Hypothesis 8 is rejected.**

From the result, it is expected that there will be less asymmetries of information between owners and lenders, with lower transaction costs and easier access to borrowing.This finding supported by the empirical evidence of Fenty Fauziah, Rusdiah Iskandar (2015), determinants of capital structure of the banking sector companies listed in Indonesia Stock Exchange, identified that firm Risk has positive insignificant effect to the capital structure. This insignificant result was also consistent with the finding of Titman and Wesseles (1988) and Amidu (2007). This insignificant result indicates that risk was not considered as a proper explanatory variable of leverage in Ethiopian banking industry.

Economic Growth (GDP):

Economic growth measured the natural logarithm of total domestic products of the country during the period. The result of economic growth variable as shown in table 4.8 indicated that with a coefficient of positive 0.1297323, standard deviation of 0.0849806, t-value of positive 1.53 and probability of 0.127 has a positive and statistically insignificant effect on

leverage ratio. This implies that the increase or decrease in GDP has statistical insignificant effect on leverage on commercial banks in Ethiopian for the study period. But the hypothesis addressed as there is significant and negative relationship between Economic growth (GDP) and leverage. **Therefore hypothesis 9 is also rejected.**

Inflation:

Inflation is measured in terms of change in consumer price index of the period. The finding as shown in table 4.8 that one of macro determinant variable, inflation with a positive coefficient of 0.0147379, standard deviation of 0.0101273, a positive t-value of 1.46 and probability of 0.146 has a positive and statistically insignificant relationship with leverage. In contrast hypothesis of the study stated that there is significantly positive relationship between inflation and leverage. **Therefore hypothesis 10 is also rejected**. The finding is supported by pecking order theory which estimates positive relationship between inflation and leverage. The change in inflation rate of the country had no effect at all on the capital structure formation of commercial banks for the period 2011 to 2016. The positive finding for the period that banks may have been more concerned about the effects of future inflation on their cost of capital.

4.4 Summary of the analysis

Table 4.9 Comparison of the Test Result with the Expectation

	Independent Variable	Expected Relation with dependent variable (LEV)	Actual Result		status
			sign	effect	
Hypothesis 1	Profitability	-	-	**insignificant**	**Rejected**
Hypothesis 2	Growth of Bank	+	+	**significant**	**Not Rejected**
Hypothesis 3	Size of Bank	+	+	**insignificant**	**Rejected**
Hypothesis 4	Dividend	+	+	**significant**	**Not Rejected**
Hypothesis 5	Liquidity	-	-	**significant**	**Not Rejected**
Hypothesis 6	Asset tangibility	-	-	**significant**	**Not Rejected**
Hypothesis 7	Net debt tax shield	+	+	**significant**	**Not Rejected**
Hypothesis 8	Risk	-	+	**insignificant**	**Rejected**
Hypothesis 9	Economic Growth	-	+	**insignificant**	**Rejected**
Hypothesis 10	Inflation	+	+	**insignificant**	**Rejected**

Table 4.9 shows summary result of the hypotheses test.

Hypothesis 1 is rejected, which claim that profitability has a negative and significant relationship with leverage ratio. But the type of relationship is negative and insignificant in contrary to the hypothesis.

Hypothesis 2 is not rejected; which state that positive and significant at 5% significance level relationship with leverage exist. In consistency with the hypothesis, there is positive and significant relationship between growth and leverage ratio.

Hypothesis 3 is rejected; sizes of banks have positive and insignificance relationship with leverage ratio. In contrast hypothesis of the variable stated that Size (Nature) of Banks has significant and positive relationship with Leverage.

Hypothesis 4 is not rejected; which states that dividend payout ratio has a positive and at 1% significant relationship with leverage ratio. Similarly the finding consistently stated that dividend payout has a positive but significant relationship with leverage.

Hypothesis 5 is also not rejected; which states that liquidity has a negative and at 1% significant relationship with leverage ratio. Consistent with the finding, liquidity has a negative and statistically significant relationship with leverage

Hypothesis 6 is also not rejected; which states that asset tangibility has a negative and at 1% significant relationship with leverage ratio. The result of asset tangibility variable as shown in table 4.9 indicated that it has a negative and statistically significant effect on leverage ratio.

Hypothesis 7 is also not rejected; the result in the table 4.9 indicated that net debt tax shield has positive and at 1% statistically significant relationship with leverage. The hypothesis claims that, the explanatory variable and leverage had a positive and statistically significant relationship.

Hypothesis 8 is rejected; risk or variability of banks', from the table 4.9 show that, there is a positive and insignificant relation with leverage ratio for the study period 2011 to 2016. In contrast, the hypothesis stated that risk and leverage ratio had a negative and statistically significant relationship.

Hypothesis 9 is also rejected; the hypothesis of economic growth variable has a negative and significant relationship with leverage ratio. But the type of relationship found on the regression is positive and insignificant.

Hypothesis 10 is also rejected; the study shows there is a positive and statistically insignificant relationship with leverage. In contrast hypothesis of the study stated that there is significantly positive relationship between inflation and leverage.

Chapter Five

5. Conclusion and Recommendations

This chapter deals with the Conclusion and Recommendation part of the study accordingly with the findings in the previous chapter. It organized in to three subsections. The first section presents the conclusion of the study very summarized manner and the second part present the recommendation based on the gaps which the research indicates and finally suggestion for further research.

5.1 Conclusion

The huge part of the financial sector of the country is dominated by investment on commercial bank. There are 16 private and one government commercial banks, and one Development bank currently on operation in the country. In this paper, the determinants of capital structure of listed commercial banks in Ethiopia were analyzed. In general, listed commercial banks exhibit higher leverage ratio when measured by total debt of the bank to total assets hold by bank. The leverage ratios were deviated among banks with in a given study period of 2011 to 2016. The collected data was analyzed using random effect panel regression method for the model used.

The descriptive statistical analysis of the study shows a mean of 85% debt incorporated in the capital formation of banks in Ethiopia for the study period. There was high variation among banks in the case of independent variables measurement result.

Random effect panel regression method was used for the model selected in order to examine the relationship between the eight banks' specific factors, (which are profitability, bank growth, bank size, dividend, liquidity, asset tangibility, net debt tax shield and risk) and macro determinant factors, (which are inflation and GDP) with leverage ratio. As the result shows that growth had positive and significant relationship with leverage and it is the most determinant factor for the formation of capital structure of commercial banks in Ethiopia for the study period. The result supported by peaking order theory.

From the regression result dividend and Net tax shield had positive and significant relationship with leverage ratio of commercial banks in Ethiopia. The result shows that, high dividend paid banks were expose to external source of debt financing. Every one unit of dividend will affect 0.0488 unit of debt financing of banks for the study period and supported by pecking-order-theory. The increase or decrease in dividend has significant impact on leverage.

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

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

The explanatory variable, dividend shows a positive relationship with leverage. So that most levered banks paid high dividend for the study period. In contrast bank with high liquidity ratio depends on internal source of finance.

In conclusion, the finding of the study suggests that growth, dividend, liquidity, asset tangibility and net debt tax shield were important variables that influence banks' capital structure, for the study period 2011 to 2016. However, there were no support of profitability, bank size, risk, economic growth and inflation influencing the level of leverage of commercial banks in Ethiopia. The results also, confirms that pecking order

theory was pertinent theory in Ethiopian banking industry, while there were little evidence to support trade-of theory and the market- timing theory.

5.2 Recommendations

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

- ✓ A research conducted on this subject is very few in Ethiopian banking industry to test empirically the determinants of capital structure. Therefore, it may help future studies in the subject as a reference.
- ✓ The result of descriptive statistics shows that there was a potential to use internal source of finance for further investment. So that banks should have to issue shares to increase their market share.
- ✓ Clearly, the pecking order theory appears to dominate the Ethiopian banking capital structure. It is therefore important for policy to be directed at improving the information environment.
- ✓ The study also shows that, banks in Ethiopia mainly use debt as external source of finance. Thus, the managements of Banks should place greater emphasis on the facilitation of equity capital in order to obtain sufficient capital to expand and diversified their business type which in turn creates greater market share for them.
- ✓ Policy makers should place greater emphasis on the facilitation of equity capital since it provides a base for further borrowing, reduces businesses' sensitivity to economic cycles, and provides firms with access to syndicates of private and institutional venture capital suppliers.
- ✓ Finally, the study tries to investigate the determinant of capital structure of commercial banks in Ethiopia. However, the variables used in the statistical analysis did not include all factors that can affect leverage ratio of banks. Thus, future research shall conduct on the issue like impact of government regulation policy and other determinant factors such as compensation for executive managers, free cash flows, age, and service diversification.

5.3 Suggestions for Further Research

Following from these findings, it would be useful to also consider the following directions for future research: how does capital market influences capital structure of banks using value at market price concept; and the relationship between capital structure and the bank credit capacity.

This study can also be replicated to other industries in Ethiopia especially to the agricultural and manufacturing industries to find out the determinants of their capital structure. A study of the same nature in corporate firms and also in microfinance institutions would be instrumental in establishing the determinants of capital structure in small scale industry in Ethiopia.

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