Determinants of Capital Structure in Commercial Banks: Evidence from Selected Commercial Banks in Ethiopia

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Abstract

Determining the optimal capital structure is one of the most fundamental policy decisions faced by financial managers. Since optimal debt ratio influences firm's value, different firms determine capital structures at different levels to maximize the value of their firms. Thus, this study examines the relationship between leverage and firm specific (profitability, tangibility, growth, age, and size) determinants of capital structure decision, and the theories of capital structure that can explain the capital structure of banks in Ethiopia. In order to investigate these issues explanatory research approach is utilized, by combining documentary analysis .More specifically, the study uses ten years (2008 -2017) data for six banks in Ethiopia. The findings show that profitability, size, tangibility, age of the banks are important determinants of capital structure of banks in Ethiopia. However, growth of banks was found to have no statistically significant impact on the capital structure of banks in Ethiopia. In addition, the results of the analysis indicate that pecking order theory is pertinent theory in Ethiopian banking industry, whereas there was little evidence to support static trade-off theory and the agency cost theory. Therefore, banks should give consideration to profitability, size, and tangibility, age when they determine their optimum capital structure.

KEY WORDS: *capital structure, leverage, firm specific variable, selected commercial banks*

Table of Contents

LIST OF Table

List of Figure

List of Acronyms

BDE Development bank of Ethiopia

CLRM classical liner regression model

Lev leverage

PR profitability

RS risk

SZ size

TA tangibility

WACC weighted average cost of capital

CLRM classical liner regression model

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Capital structure refers to several alternatives that could be adopted by a firm to get the necessary funds for its investing activities in a way that is consistent with its priorities. Most of the effort of the financial decision making process is centered on the determination of the optimal capital structure; where the firms' value is maximized and cost of capital is minimized. Capital structure theory suggests that firms determine was is often referred to as a target debt ratio; which is based on various trade-off between the costs and benefits of debt versus equity. The modern theory of capital structure was first established by Modigliani and Miller (1958). Following the seminal work of Modigliani and Miller (1958), a vast theoretical literature developed, which led to the formulation of alternative theories, such as the static trade off theory, pecking order theory and agency cost theory. Starting with Modigliani and Miller (1958), the literature on capital structure has been expanded by many theoretical and empirical contributions. For non-financial firms the empirical literature has generally converged on particular variables that have been found to be consistently correlated with leverage such as: age, size, growth, profitability, market-to-book ratio, collateral value and dividend policy. On the other hand, the capital structure of banks is still a relatively under-explored area in the banking literature. Currently, there is no clear understanding on how banks choose their capital structure and was factors influence their corporate financing behavior (Amidu 2007). In Ethiopia as to the knowledge of the researcher there were few studies which relate with this title these are, Ashenafi (2005) a case study in Addis Ababa Small and Medium enterprises, Amanuel (2011) evidence from manufacturing share companies of Addis Ababa city and Bayeh (2011) evidence from Ethiopian insurance

company. Therefore, given the unique financial features of banks and the environment in which they operate, there are strong grounds for a separate study on capital structure determinants of banks in Ethiopia. Therefore, the main purpose of this study was to examine the relationship between leverage and determinants of capital structure decision of banks in Ethiopia. This will equip financial managers with applied knowledge of determining their capital structure, and play role in filling gap in understanding of the capital structure decision.

1.2 .Statement of the Problem

According to Korajczyk (2003), banks and other financial institutions are specialize businesses, which capital structure is affected by a series of conditions of the financial industry, such as governmental regulations and access to insurance instruments of the Federal government, which includes deposits. Owing to these fundamental roles, banks have always been concern with both solvency and liquidity. Given the central role of market and credit risk in their core business, the success of banks depend on their ability to identify, assess, monitor and manage these risks in a sound and sophisticated way. In order to assess and manage risks, banks must have effective ways of determining the appropriate amount of capital that is necessary to absorb un expected losses arising from their market, credit and operational risk exposures.

Thus given the above foregoing analysis, the given Ethiopian banking sector provides an interesting case to assess the determinants of capital structure. In a study on determinants of capital structure of banks in Ghana, Amidu (2007) found that profitability, corporate tax, growth, asset structure and bank size influenced banks‟ financing or capital structure decision. Gonzalez and Gonzalez (2008) studied how bank market concentration and institutions affect capital structure in 39 countries and found that firm leverage increases with bank concentration and the protection of credit rights, but decreases with the protection of property rights. Gropp and Heider (2009) examine whether capital requirements are a first-order determinant of banks‟ capital structure and found that capital regulation and buffers may only be of second order importance in determine the capital structure of most banks Therefore a research gap on the determinants of capital structure of commercial banks in Ethiopia As much the banks are regulate, evidence has shown that regulation is a second-order determinant of capital structure of banks and that there

are considerable similarities between banks‟ and non-financial firms‟ capital structures (Gropp and Heider, 2009). As per the researcher's access and knowledge, the researchers conducted on Determinants of capital structure so far in Ethiopian case are by Ashenafi(2005) and Kibrom (2010) Ashenafi (2005) approached the question of capital structure using data from medium firms in Ethiopia. He took variables like age of firms, size of firms, tangibility, profitability and growth are regressed against leverage. The results proved that, profitability, growth, tangibility, and age showed a negative coefficient of correlation with debt to equity ratio. Recently Kibrom (2010) also uncovered the fact that the two variables (profitability and growth) established negative relationship and the remaining three variables (tangibility, size, and age) showed positive relationship with capital structure. As a result, profitability variable attained an inverse relationship with capital structure measure that supports Pecking order theory, but opposes the Static trade-off theory .Thus the researcher motivate to conduct this research due to lack of agreement about optimal determinant of capital structure and as per the researcher knowledge lack of literature regarding commercial banks. This study therefore seeks to answer the following question:

Was are the firm specific determinants of capital structure on selected commercial banks of Ethiopia?

1.3. Objective of the study

1.3.1. General Objectives

The objective of this study is to find out the determinants of capital structure of selected commercial banks in Ethiopia.

1.3.2. Specific Objectives

This study attempted to achieve the following specific objectives:

- ✓ To measure the effect of change in profitability on the financing mix (leverage) of selected commercial banks in Ethiopia,
- ✓ To find out the extent to which variations in bank size explain the variations in debt to equity ratio of selected commercial banks in Ethiopia,
- ✓ To determine the effect of a change in growth of selected commercial banks on their leverage,

- ✓ To determine the consequence of change in the tangibility of assets held by selected commercial banks of Ethiopia on the debt to equity ratio,
- ✓ To find out the response of capital structure to the age variation of the selected commercial banks operating in Ethiopia.

1.4. Hypothesis of the study

Profitability:

Capital structure theories have different views on the relationship between leverage and profitability. The trade-off theory argues that firms generally prefer debt for tax considerations. Profitable firms will, therefore, employ more debt because increased leverage would increase the value of their debt tax shield (Myers 1984).In addition to the tax advantage of debt, agency and bankruptcy costs may encourage highly profitable firms to have more debt in their capital structure. Pecking order theory assumes that larger earnings lead to the increase of the main source of capital firms choose to cover their financial deficit: retained earnings. Therefore, the Static trade-off theory expects a positive relationship between profitability and leverage, whereas the pecking order theory expects exactly the opposite.

Tangibility:

Tangibility is an important determinant of the capital structure of a firm. The trade-off theory predicts a positive relation between tangibility and debt levels. As the value of intangible assets disappears (almost entirely) in the cases of bankruptcies, the presence of tangible assets is expected to be important in external borrowing as it is easy to collateralize them.

Size:

According to trade-off theory, firm size could be an inverse proxy for the probability of the bankruptcy costs. Larger firms are likely to be more diversified and fail less often. They can lower costs (relative to firm value) in the occasion of bankruptcy. Larger firms are more likely to have higher debt capacity and are expected to borrow more to maximize the tax benefit from debt because of diversification (Titman and Wessels (1988). Therefore, size has a positive effect

on leverage. Size can be regarded as a proxy for information asymmetry between managers and outside investors. Large firms are subject to more news than small firms because the investment community will be more concern with gathering and providing information about large firms.

Growth:

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

Age:

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

H1=there is a negative and significant relationship between profitability and leverage ratio.

H2=there is a positive and significant relationship between tangibility and leverage ratio.

H3=there is a positive and significant relationship between the firm's size and its leverage ratio.

H4=there is a positive and significant relationship between growth and leverage ratio.

H5=there is a positive and significant relationship between affirms age and its leverage ratio**.**

1.5. Scope and limitation of the study

The scope of this study is limit the relationship between leverage and determinants of capital structure decision of selected commercial banks over the period 2008 to 2017 for ten years. Besides, this study will limit to firm specific determinants of capital structure (profitability, growth, tangibility, size and age) of selected commercial bank. The major limitations that hamper the study were resource constraint and unavailability of active secondary market which forced the researcher to measure the dependent variable i.e. measures of leverage as well as

independent variables. .

1.6. Significance of the study

Studies by Weldemikael (2012) & Kibrom (2010) investigate the determinants of capital structure of firms in Ethiopia. However, to the best knowledge of the researcher there is no study that has focuses on commercial banks of Ethiopia. Thus, this study has significant role to play in filling gap in understanding of the capital structure decision for banks in Ethiopia. Such an understanding is important, because it equips financial managers with applied knowledge of determining their capital structure. As an appropriate capital structure is important to a firm as it will help in dealing with competitive environment within which the firm operates, and which will maximize the return of the stockholders by increasing the value of the firm. Additionally, this study will be used as an input to researchers for further research on determinant of capital structure.

1.7. Organization of the Paper

This study will organize into five chapters. Chapter one which includes background of the study, statement of the problem, objective of the study, hypotheses of the research, scope and limitation and significance of the study, and organization of the paper. Chapter two of the study presents review of theoretical and empirical literatures on determinants of capital structure. Chapter three present the research methodology, chapter four present results and analysis of the study and finally chapter five present conclusions and recommendation.

CHAPTER TWO

2. REVIEW OF RELATED LITRATURE

Capital structure refers to several alternatives that could be adopt by a firm to get the necessary funds for its investing activities in a way that is consistent with its priorities. Two major sources of financing that are available to firms are debt and equity. The mixture of debt and equity is called capital structure. Most of the effort of the financial decision making process is centered on the determination of the optimal capital structure; are the firms' value is maximized and cost of capital is minimized.

2.1. Theoretical review

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

2.1.1. Modigliani and Miller (MM) theory

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

However, there is a fundamental difference between debt financing and equity financing in the real world with corporate taxes. Dividends paid to shareholders come from the after tax profit. By contrast, interest paid to bondholders comes out of the before-tax profits. Thus, Millerand Modigliani (1963) argued that in the presence of corporate taxes, a value-maximizing decision on capital structure can be helpful to minimize these costs.

2.1.2. Static Trade-off Theory

Trade-off theory claimed that a firm's optimal debt ratio is determined by a trade-off between the bankruptcy cost and tax advantage of borrowing, holding the firm's assets and investment plans constant (Myers, 1984). The goal is to maximize the firm value for that reason debt and equity

are used as substitutes. According to this theory, higher profitability decreases the expected costs of distress and let firms increase their tax benefits by raising leverage; therefore, firms should prefer debt financing because of the tax benefit. As per this theory firms can borrow up to the point where the tax benefit from an extra dollar in debt is exactly equal to the cost that comes from the increased probability of financial distress (Ross, 2002, p.586).

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

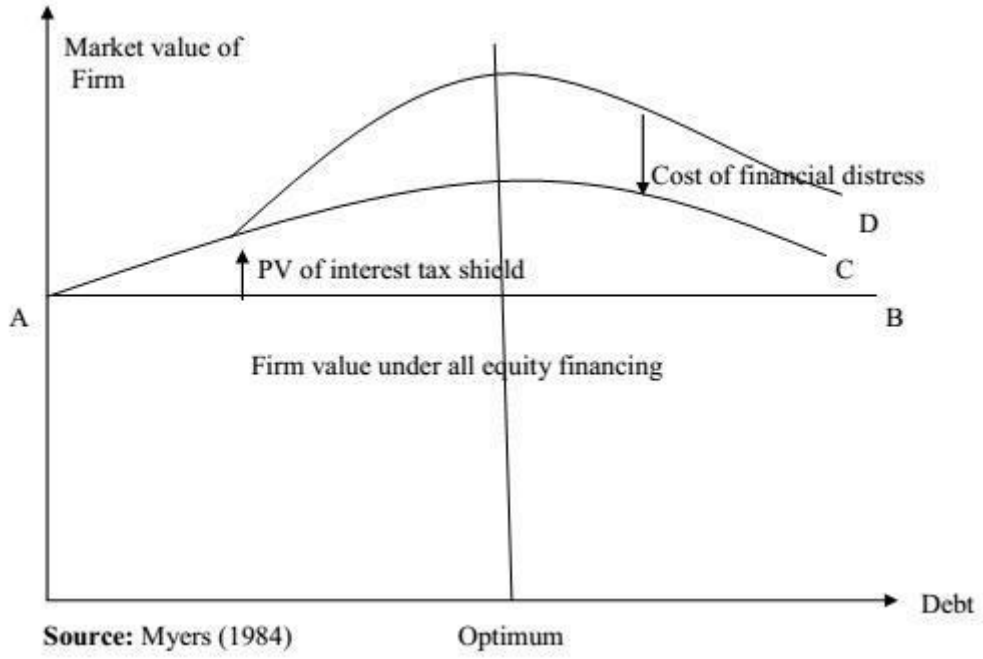


Figure 1:The-static-tradeoff theory of capital structure

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

2.1.3. Pecking order theory

Pecking Order Theory is developed by Myers and Majluf (1984) which stated that capital structure is driven by firm's desire to finance new investments, first internally, then with low-risk debt, and Investment and financing decisions. According to this theory, informational

asymmetry, which firm's managers or insiders have inside information about the firm's returns or investment opportunities, increases the leverage of the firm with the same extent. So due to the asymmetries.

They demonstrate that if there is an asymmetry of information between investors and firm insiders, then the firm's equity may be underpriced by the market. As a result, new equity, which is used to finance new investment projects, will be also underpriced. Therefore, if management has favorable inside information and acts in the best interest of the existing shareholders, then management will refuse to issue equity even if it means passing up positive net present value Projects because the net loss to existing shareholders (due to underpricing problem) might outweigh the project's Net present values .On the other hand, Passing up positive net present value projects is contrary to the wealth maximization. Using financial sources that may not be undervalued by the market, particularly internally generated funds could solve this under-investment problem.

2.1.4. Agency cost theory

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

Ryen et al. (1997) provide a theoretical summary of agency cost theory. According to Ryen et al., two sets of agency problems were faced by firms, conflict between managers and stockholders and conflict between stockholders and bondholders. For the managers and stockholders conflict, managers usually overspend or take less leverage and these are seen not benefiting the stockholders. Managers take lesser leverage in order to avoid total risk, which comprises of risk of losing job, reputation and wealth On the other hand, overspending by

managers to make opportunity loss of firms' cash flow which could be use on the activities that benefit stockholders.

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

2.2. Empirical studies on the determinants of capital structure

Since the pioneering work of Modigliani and Miller (1958), the question of was determines firms' choices of capital structure has been a major field in the corporate finance literature. Since then, several studies have been conducted in developing and developed countries to empirical studies in this section on the determinants of capital structure decision has a particular focus on those that have been conducted since the 1988s.

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

In a comparative study, Rajan and Zingles (1995) investigated whether the capital structure in other developed countries is related to factors similar to those influencing the US companies for the period of 1987-1991. Tangible assets, market to book ratio, firm size and profitability are suggested as determinants of capital structure in these countries. They find that firms with more collateralized assets are not highly levered. In addition, they found that profitability and market to book ratio are negatively related to leverage.

However, they argue that the negative relationship with leverage appeared to be driven by firms with high market to book ratio rather than by firms with low market to book ratio. The study provides no evidence supporting the effect of the firm size on leverage. Finally, the findings were not varied across the G-7 countries so they concluded that capital structure in other countries was affected by factors similar to those that influence the US companies.

Booth et al. (2001) assessed whether capital structure theory is portable across Developing countries with different institutional structures. The sample firms in their study are from Malaysia, Zimbabwe, Mexico, Brazil, Turkey, Jordan, India, Pakistan, Thailand, and Korea. Booth et al. (2001) use three measure of debt ratio; total debt ratio, long-term book debt ratio. and long-term market debt ratio with average tax rate, assets tangibility, business risk, size, profitability, and the market to book ratio as explanatory variables.

The study show that the more profitable the firm, the lower the debt ratio, regardless of how the debt ratio is defined. It also showed that the more the tangible assets, the higher the long-term debt ratio but the smaller the total debt ratio. Booth et al. (2001) concluded that the debt ratio in developing countries seemed to be affect in the same way by the same types of variables that are significant in developed countries. However, they pointed out that the long-term debt ratios of those countries are considerably lower than those of developed countries. This finding may indicate that the agency costs of debt are significantly large in developing countries or markets for long term debt are not effectively functioning in these countries.

Finally, Booth et al. (2001) argued that their results are in line with Rajan and Zingales (1995) except for the tax and the market-to-book ratio. Bevan and Danbolt (2002) who extended the work of Rajan and Zingales (1995) tested the determinants of capital structure in the United Kingdom non-financial firms by using four measures of financial leverage. They used non-equity liabilities to total assets, total debt to total assets, total debt to capital (where capital is defined as total debt plus common shares with preferred shares), and adjusted debt to adjusted capital. All the measures were regressed on market-to-book value, natural logarithm of sales (size), profitability, and tangibility of assets. They found that determinants of capital structure were significantly changed with respect to each measure of debt used. With the same leverage definition as Rajan and Zingales, Bevan and Danbolt (2002) reported similar results. In their later paper, Bevan and Danbolt (2004) analyzed the determinants of capital structure of 1054 UK

Companies from the period 1991-1997. Secondly, they also investigated the extentto which the influence of these determinants is affected by time invariant and firm specific Heterogeneity.

Bevan and Danbolt (2004) as Bevan and Danbolt (2002) use market-to book value, natural logarithm of sales (size), profitability, and tangibility of assets as determinants of capital structure. In addition to the time invariant and firm specific heterogeneity, the focus will on the variety of long - run and short run debts components rather than on the aggregate measures. They found that large firms use long and short term debt more than small ones. be positively related to both short and long-term debt, while profitability is found to be negatively related. However, they find that profitable firms tend to use short-term debt more than less profitable one.

Gropp and Heider (2009) approached the issue from a different perspective. Using a sample of banks from developed countries, they specifically tested the significance of size, profitability, market-to-book ratio, asset tangibility, and dividend paying status in determining bank leverage. In the process, they made a stark distinction between bank book and market leverage as well as controlled for asset risk and macroeconomic factors. They further examined whether asset risk captures the effect of risk adjustments on the minimum capital required or it rather represents factors pertaining to the standard capital structure theories. Overall, their results provided strong support for the relevance of standard determinants of capital structure on bank capital.

2.3 Conceptual frame work

According to Mugeude et.al (2000) a conceptual frame work helps the reader to quickly see the proposed relationship between the variables in the study and show the same graphically. In this study independent variable whereas profitability, tangibility, firm size, growth and a firms age whereas dependent variable is leverage ratio.

Independent variable Dependent variable

Leverage ratio

Profitability

Tangibility

Size

Growth

Age

2.4 Conclusion and knowledge gap

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

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

Therefore, the firms prefer internal financing to external financing. Agency theory focuses on the costs which are created due to conflicts of interest between shareholders, managers and debt holders. According to this theory capital structures are determined by agency costs, which includes the costs for both debt and equity issue. This shows that theories of capital structure have been resulting in different conclusions. Similarly, the findings of prior empirical studies have provided varying evidence related to the determinants of capital structure.

CHAPTER THREE

RESEARCH METHDOLOGY

3. Introduction

This chapter specifically gives a brief description of the research method that would examine determinants of capital structure of commercial banking sector in Ethiopia with most recent available data. This chapter include research design, research approach adopts and data source. A detail description of quantitative research approach tools with population and sampling, source of data and the data collection procedure, type of data analysis, model specification is also would discuss.

3.1. Research Approaches

As noted in Creswell (2009) in terms of investigative study there are three familiar types of research approaches to business and social research namely, quantitative, qualitative and mixed methods approach. It is an explanatory research will employ a quantitative method.

3.2. Research Design

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

3.3. Sampling Design and Sample Size

For fair and uniform comparison and to obtain valid results, commercial banks are selected. In other words, the reason why commercial banking sector is chosen is: Firstly, commercial banking business is emerging and also flourishing in Ethiopian economy where the literature on determinants of capital structure is limited. Secondly, the commercial banks share common attributes in accounting practices, corporate governance and corporate control. As a result,

Development bank of Ethiopia (DBE)is not considered due to their specialized business objectives. Sample of six commercial banks are selected from the population of 16 commercial banks. In other words, the entire population selected commercial banks that exists, at least, for the last ten years (2008-2017) is selected. It represent the existing selected commercial banks. Therefore, pooling the cross sectional data of 10 years for 6 commercial banks, there are total 60(sixty) observations in the regression analysis. For this reason, the selected banks are NIB international bank, lion international bank, awash international bank, Abyssinia international bank, wegagen bank, and cooperative bank of oromia.

3.4. Data Source and Collection

The researches has approach exclusively secondary sources of data, audited financial statements (Balance sheets and income statements), of six selected commercial banks aged ten year and above been operating in the Ethiopian economy for the specified time period. Though some of the sampled commercial banks have an experience of greater than ten years, the researcher has taken secondary data from their financial statements that belong or correspond to only the past ten consecutive years. Furthermore, selected explanatory attributes and used regression model have taken from most prominent and recent research studies in the area of capital structure.

3.5. Method of Data Analysis

Multiple regression model is employed to determine whether there exists a relationship between the multiple independent variables (Determinants = Profitability, Tangibility, Size, Growth, Age,) and the dependent variable (Leverage = Debt to Equity Ratio). One regression equation is used to test the hypotheses constructed in relation to firm-specific determinants (Profitability, Tangibility, Size, Growth, and Age) and the leverage (Debt-Equity Ratio). Data were regressed using E-view"8"application software and the resulted (or obtained) regression outputs are analyzed.

3.6. Model Specification

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

General Form of the Equation is:

LEVERAGE = Function of (Profitability, Tangibility, Size, Growth, Age,)

Therefore, the Specified Model is**:**

Leverage = β0 + β1 (Prof) + β2 (Tang) + β3 (Size) + β4 (Grow) + β5 (Age) + ε

Whereas

STANDARD COEFFICIENTS AND ERROR TERM			
β0	= Coefficient of Intercept (Constant)	β4	= Coefficient of Growth
β1	= Coefficient of Profitability	β5	= Coefficient of Age
β2	= Coefficient of Tangibility	ε= the Error Term	
β3	= Coefficient of Firm Size		

DEPENDENT VARIABLE

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

INDEPENDENT VARIABLES

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

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

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

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

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

3.6. Definition and Measurement of Variables

In this study, the researcher has used one dependent variable (Leverage = Debt to Equity Ratio) and Five explanatory variables such as profitability, tangibility, size, growth, and age from most prominent and recent empirical studies. The selection measures for dependent variable (leverage,

which is proxy to capital structure) and independent variables (firm-specific) are detailed as follows.

3.6.1. Dependent Variable (LEVERAGE)

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

$$\textbf{DEBT TO EQUITY RATIO} = \frac{\text{Total liability}}{\text{Total shareholder's equity}}$$

3.6.2. Independent variables

I. Profitability

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

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

II. Tangibility

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

$$\textbf{Tangibility} = \frac{\text{fixed asset}}{\text{Total Assets}}$$

III. Size

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

Size = Natural Logarithm of TOTAL ASSETS= In (Total Assets)

IV. Growth

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

$$\textbf{Growth} = \frac{\text{TA current year- TA previous year}}{\text{TA current year}}$$

V. Age

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

Age =Number of years in business

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents the results of data analysis. The chapter is organized as follows. Section 4.2 presents the descriptive analysis results while section 4.3 presents the regression analysis results.

4.2 Descriptive Statistics

Table 4.1 provides a summary of the descriptive statistics of the dependent and explanatory variables. The descriptive statistics of the dependent and explanatory variables for the sample banks were summarized in table4.1The total observation for each dependent and explanatory variable was 60. Moreover, the table also shows the mean, standard deviation, minimum, median and maximum values for the dependent and independent variables

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

	LEV	PRO	SIZE	TAG	GRO	AGE
Mean	7.258678	0.029471	8.953658	0.023084	-0.231879	1.123129
Median	7.908909	0.029477	8.958256	0.014754	-0.224420	1.156128
Maximum	9.08440	0.040254	10.58120	0.064181	-0.035479	1.442423
Minimum	3.903865	0.003415	9.439054	0.007293	-0.504915	0.612060
Std. Dev.	1.713542	0.00713	0.279999	0.013296	0.086663	0.160081
Skewness	0.228243	-0.786890	-0.151500	1.348011	-0.784856	-1.147324
Kurtosis	2.083401	4.676473	2.334520	4.501485	3.628757	4.567009
Jarque-Bera	2.621333	13.21837	1.336680	23.80749	7.148333	19.30231
Probability	0.269640	0.001348	0.512559	0.000007	0.028039	0.000064
Sum	411.5207	1.708250	597.2195	1.325034	-13.91271	66.78771
Sum Sq. Dev.	183.2373	0.002659	4.301052	0.010431	0.551277	1.328931
Observations	60	60	60	60	60	60

This shows the average indicators of variables computed from the financial statements. The mean (median) leverage of banks was 7.958678 (7.908909). This means that more than 7.93 of the banks in Ethiopia are financed by debts. This indicate that debt ratio was high in this study. Leverage for the sample period was ranged from 3.903865 to 9.08440with a standard deviation of 1.7133542. Profitability, given as the ratio of pre-tax profits plus interest expense to total assets, registered a mean value of 0.029471 indicating a return on assets of 2.29 per cent and median of 2.9477 percent with a standard deviation of 0.6713 percent and profitability for the sample was ranged from 0.003415 percent to 0.04254 percent. This shows the existence of variation in profit among banks in Ethiopia.

Growth was measured as the annual percentage change in total asset and this shows the mean (median) was -0.231879 (-0.224420). This indicates that, on average, growth rate was -22.815 per cent during the ten-year period and growth in total asset for sample period were ranged from – 50.4915 percent to -0.035479 percent with standard deviation of 0.08666 percent. This indicates the existence of high variation in growth rate among banks in Ethiopia.

Size, determined as the natural logarithm of total assets had a mean (median) of 8.953658(8.958256) with a standard deviation of 0. 27999 .total asset for sample were ranged from 9.439054 to 10.58120 this implies that there is a variation among commercial banks of Ethiopia and selected banks in Ethiopia. Tangibility had a mean (median) of 0.023084 (0.014754) with the standard deviation of 0.150081 total asset for sample was ranged from 0.007293 to0.64181 this implies that there is a variation among commercial banks of Ethiopia & selected banks in Ethiopia. Age is the number years in business charge on has a mean (median) of 1.123129 (1.156128) with standard deviation of 0.160081 with sample ranged from 0.61206 to 1.442423 percent.

4.2 Correlation Analysis

Table 4.2, shows the correlation between the explanatory variable and leverage in this study. As noted in Brooks (2008), Correlation between two variables measures the degree of linear association between them. Values of the correlation coefficient are always ranged between positive one and negative one. A correlation coefficient of positive one indicates that a perfect positive association between the two variables; while a correlation coefficient of negative one

indicates that a perfect negative association between the two variables. A correlation coefficient of zero, on the other hand, indicates that there is no linear relationship between the two variables. The correlation matrix in Table 4.2 shows that leverage (dependent variable) was negatively correlated with profitability, tangibility, age. Which indicates that firm with higher leverage have less profitability, tangibility, age. However, size and growth have positive correlation with statistically significant correlation. Leverage was correlated -0.0360746,-0.26922,-0.04002with profitability, tangibility and age has insignificant correlation and Leverage was correlated 0.1258, 0.0570with growth and size statistically significant correlation.

Table 4.2 correlation matrix of explanatory variable

	LEV	PRO	SIZE	TAG	GRO	AGE
LEV	1					
PRO	-0.3607460	1				
SIZE	0.0570	-0.043872	1			
TAG	-0.26922	-0.097927	0.5417916	1		
GRO	0.1258	0.1686	0.2334	-0.2117199	1	
AGE	-0.40002	-0.14065	0.44580	0.59930	0.037397760	1

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

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

4.3.1 Assumption one; Testing for the average value of the error-term is zero

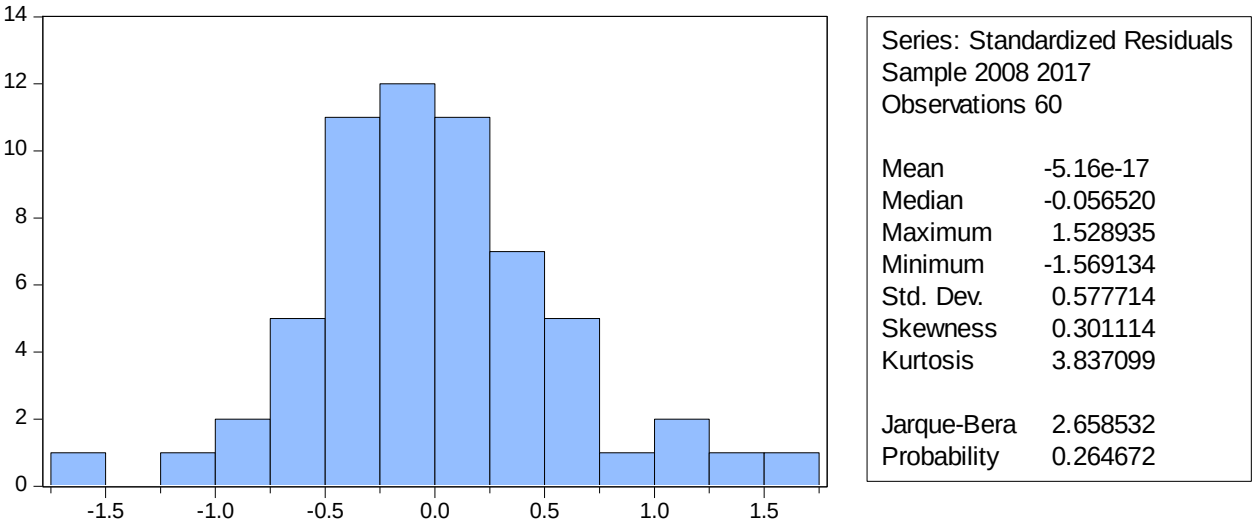
The first CLRM assumption requires, the average value of the errors term should be zero. As per (Brooks, 2008), if a constant term is included in the regression equation, this assumption will not

be violated. Therefore, since the constant term was included in the regression equation, this assumption will not be violated.

4.3.2Test of Normality

Normality test of data is applied to determine whether a data is well-modeled by a normal distribution or not, and to compute how likely an underlying random variable is to be normally distributed. In the figure show the skwness is close to 0 and standard deviation 0.58 which is close to 1 the data consistent with a normal distribution assumption.

Figure 4.2 histogram showing normal distribution of data



4.3.3Test of Multicollinearity

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

Table 4.3 correlation matrix between independent variables

	PRO	SIZE	TAG	GRO	AGE
PRO	1				
SIZE	-0.043872	1			
TAG	-0.097927	0.5417916	1		
GRO	0.1686	0.2334	-0.2117199	1	
AGE	-0.14065	0.44580	0.59930	0.037397760	1

4.3.4 Test of Heteroscedasticity

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

Heteroskedasticity Test: White

F-statistic	1.060198	Prob. F(20,39)	0.4241
Obs*R-squared	21.13213	Prob. Chi-Square(20)	0.3894
Scaled explained SS	11.76363	Prob. Chi-Square(20)	0.9240

4.3.5 Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	43.58607	Prob. F(2,52)	0.0000
Obs*R-squared	37.58172	Prob. Chi-Square(2)	0.0000

An assumption that the covariance between the error terms over time (or cross-section ally, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are ‘auto correlated or that they are serially correlated.

4.4Random Effect versus Fixed Effect Models

The best alternative to make a choice between fixed effects and random effects model is conducting Hausman specification test. In this study the Hausman specification tests is utilized to decide which model is appropriate to fit the sample data. Hausman specification test is the classical test of whether the fixed or random effects model should have used. If the P-value from the Hausman test is statistically significant (less than five percent) the fixed effect model is preferred in favor of random effect, otherwise the random effect model is selected.

Correlated Random Effect-Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	189.524558	5	0.0000

4.5. Discussions of regression results

The results of the multiple regression model between leverage (dependent variables) and the Explanatory variables are reported in Table 4.4

Table 4.4Firm specific analysis of determinant of capital structure

Dependent Variable: LEV
Method: Panel Least Squares
Date: 12/12/20 Time: 05:42
Sample: 2008 2017
Periods included: 10
Cross-sections included: 6
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GRO	2.249873	1.132822	1.836010	0.0724
PRO	-55.73432	15.59283	-3.446092	0.0012
SIZE	2.855970	0.977633	2.921311	0.0053
TAG	-36.54567	11.01288	-3.318449	0.0017
AGE	-8.573673	2.191015	-3.913106	0.0003
C	-64.205857	7.853167	-1.172248	0.2468

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.876372	Mean dependent var	6.858678
Adjusted R-squared	0.843235	S.D. dependent var	1.713542
S.E. of regression	0.633930	Akaike info criterion	2.090385
Sum squared resid	19.69147	Schwarz criterion	2.474348
Log likelihood	-51.71154	Hannan-Quinn criter.	2.240574
F-statistic	39.30815	Durbin-Watson stat	1.384199
Prob(F-statistic)	0.000000		

Source: From E-views, 8,

Table 4.5shows that the R square is 0.87 which indicates that about 87 percent of the variability in leverage is explained by the selected firm-specific factors (Profitability ,age, Tangibility, Growth, and Size).

The regression result in table 4.5 indicates that profitability was strongly statistically significant (p-value = 0.00) at 1 percent level and had negative relation with leverage ratio. Similarly, size was statistically significant (p-value =0.0053) at 1 percent level and had positive relation with leverage ratio. In the same way tangibility significant (p- value = 0.0017) at 1 percent level and had negative relation with leverage ratio. Age significant (p-value= 0.0003) at 1 percent and negatively relation with leverage. But growth do not have statistically significant relationship with leverage with a p-value of 0.724.

LEVERAGE WITH PROFITABILITY

In this study, profitability is estimated to be negatively related with bank's leverage ratio and this relationship is found statistically significance level. It implies that profitable firms in Ethiopian commercial banking sector maintain low debt to equity ratio. This result is consistent with predictions of Pecking order theory which states that firms prefer to finance first with internal funds before raising external financing. It can be concluded that highly profitable commercial banks in Ethiopia maintain low debt to equity ratio and they utilize more equity source compared to debt for making their capital structure.

LEVERAGE WITH TANGIBILITY

Although, the results on Table show a negative relation between tangibility and leverage. For Tangibility, in this study, the sign of tangibility variable coefficient is found to be negative and statistically significant.

LEVERAGE WITH SIZE

The results also indicate a statistically significant positive relationship between size and leverage. This suggests that larger commercial banks tend to have higher leverage ratios and borrow more capital than smaller commercial banks do. One reason is that, larger banks are more diversified and hence have lower variance of earnings, enable them to manage high debt ratios.

LEVERAGE WITH GROWTH

The results show a positive relation between growths on the one hand and leverage on the other hand this finding also supported by Ross, et al (2008) Growing firms place a greater demand on the internally generated funds of the firm It means pecking order theory indicates the positive relationship between growth and leverage. Consequently, banks with a relatively high growth rate will tend to look at short-term less secured debt first then to longer-term more secured debt to finance their growth.

LEVERAGE WITH AGE

The negative and statistically significant influence of age in this study was consistent with a theoretical analysis of pecking order which state that high age firms use internal resources instead of external to finance their projects. Therefore, this negative effect of age on leverage .

Table 4.5 ***Summary of actual and expected signs of explanatory variables on the dependent variables***

Explanatory Variable	**Expected Sign**	**Actual Sign**	**Significance**	**Decision on Hypothesis**
Profitability	-	-	Significant	Accept
Growth	+	+	Insignificant	Reject
Size	+	+	Significant	Accept
Age	+	-	Significant	Accept
Tangibility	+	+	Significant	Accept

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5. Introduction

This chapter presents the summary of the study in section 5.2, conclusion in section 5.3, recommendations.

5.1 Summary of findings

The objective of this study was to find out the determinants of capital structure of selected commercial banks in Ethiopia. The study used explanatory research design to find out the relationship between independent variables and dependent variables of the study. The population of this study was selected commercial banks in Ethiopia currently licensed by the National Bank of Ethiopia to operate among them the researcher took six that generates financial statement from 2008 onwards. Secondary data was drawn from the financial statements of National banks of Ethiopia from 2008-2017. The data was analyzed using descriptive analysis and multiple regression analysis.

5.2 Conclusion

This study examines the determinants of capital structure of selected commercial banks in Ethiopia .The findings of prior empirical studies have provided varying evidence related to the impact of these factors on capital structure. Furthermore, the majority of these studies have been conducted in developed countries that have many institutional similarities.

From the descriptive statistic the average (mean) debt to equity ratio (DER) of the cased commercial banks is found to be 7.2558678 signifying the banks in Ethiopia are financed by debts. That is, the banks financing decision is inclining to deposit (or debt) mobilization than to the equity financing.

In light of the above, the main objective of this study was to examine the relationship between leverage and firm specific (profitability, Size, growth, tangibility, and age) determinants of capital structure decision, and to understand about theories of capital structure that can explain the capital structure of selected commercial banks in Ethiopian. To achieve the intended

objective the study used inferential research design. The collected data were analyzed by employing model by using E-view '8'. From the analysis the data analyzed for this study. As can be seen in the table4.4 above, the model estimated gives the following result. The estimated model above has an R2 and Adjusted R2 87.6376% and 84.3165% respectively as its coefficient of variation. This indicates that the variations or changes in the capital structure of the understudied bank in Ethiopia not only determined by the dependent variables selected for this study. This is further supported by the F Statistic which is given at 39.30815 and significant at 1% level of significance from the F Statistic Prob. This shows that the coefficients of the variables in our model are statistically different from zero. The Durbin-Watson Statistic estimated at 1.384199 indicates that there is no trace of serial correlation in the error terms of our model which may render it a spurious regression

5.3 Recommendation

From the finding the researcher obtains result based on that the under listed recommendation suggested:

The study recommends that through this study, it is that major players such as bank managers, financial analysts and policy maker will have better understanding about the factors which may affect the capital structure of the Ethiopian banking sector and enhance competitiveness in the banking sector. Therefore, banks should pay greater attention to these significant variables in determining their capital structure this analyses indicated that the variables of profitability tangibility, growth size, and age were significantly related to leverage ratio. The analysis R2 gives a result of 87.6376% this implies that the variable which studied not give optimal determinant of capital structure so banks must research other than the studied variables in order to optimize the determinant of capital structure

In this study, the researcher has mainly examined the factors that influence financing mix of commercial banks in Ethiopia. It might be interesting and crucial to extend this research to other sectors of the economy in the country. Thus, future researcher may address these deficiencies by including external variable like inflation, GDP, interest rate and ownership structure, in order to demonstrate the impact of both internal and external variables on the choice of capital structure.

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Appendix I: Hausman Test of capital structure

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	189.524558	5	0.0000

Table 4.4Firm specific analysis of determinant of capital structure

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SIZE	2.855970	0.977633	2.921311	0.0053
TAG	-36.54567	11.01288	-3.318449	0.0017
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C	-64.205857	7.853167	-1.172248	0.2468

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.876372	Mean dependent var	6.858678
Adjusted R-squared	0.843235	S.D. dependent var	1.713542
S.E. of regression	0.633930	Akaike info criterion	2.090385
Sum squared resid	19.69147	Schwarz criterion	2.474348
Log likelihood	-51.71154	Hannan-Quinn criter.	2.240574
F-statistic	39.30815	Durbin-Watson stat	1.384199
Prob(F-statistic)	0.000000		

Appendix II Heteroskedasticity Test: White

Heteroskedasticity Test: White

F-statistic	1.060198	Prob. F(20,39)	0.4241
Obs*R-squared	21.13213	Prob. Chi-Square(20)	0.3894
Scaled explained SS	11.76363	Prob. Chi-Square(20)	0.9240

Appendix III; Ratio Data of capital structure

ID	Years	lev	pro	tag	Age	size	Gro
1	2008	6.824885	0.437337	0.02611	1.113943	9.583142	-0.35849
1	2009	6.073702	0.039668	0.027178	1.146128	9.683067	-0.33257
1	2010	6.502667	0.022264	0.022887	1.176091	9.853236	-0.23696
1	2011	6.32234	0.031215	0.028571	1.20412	9.95535	-0.27325
1	2012	6.601895	0.035686	0.025448	1.230449	10.0449	-0.18001
1	2013	6.304047	0.033007	0.027399	1.255273	10.11811	-0.24479
1	2014	6.896569	0.034188	0.032034	1.278754	10.25004	-0.34792
1	2015	6.820234	0.030856	0.031784	1.30103	10.34453	-0.19176
1	2016	6.624175	0.027036	0.037974	1.322219	10.40158	-0.24047
1	2017	6.664843	0.025119	0.039291	1.342423	10.4812	-0.41761
2	2008	7.426799	0.019729	0.012073	1.041393	9.530929	-0.25734
2	2009	9.174276	0.003415	0.015451	1.079181	9.630382	-0.28263
2	2010	9.54758	0.018343	0.014176	1.113943	9.738513	-0.14669
2	2011	9.735043	0.022452	0.012199	1.146128	9.797928	-0.15892
2	2012	10.01059	0.024869	0.011892	1.176091	9.861986	-0.13218
2	2013	8.084895	0.026214	0.011597	1.20412	9.915913	-0.22925
2	2014	8.141697	0.021325	0.026105	1.230449	10.0069	-0.11324
2	2015	6.374755	0.039642	0.043199	1.255273	10.05217	-0.21209
2	2016	6.548839	0.021345	0.063971	1.278754	10.13569	-0.23124
2	2017	6.921249	0.021427	0.064181	1.30103	10.2341	-0.50492
3	2008	10.0844	0.030955	0.016057	0.60206	9.781109	-0.29598
3	2009	8.709986	0.030528	0.011987	0.69897	9.893706	-0.2432

3	2010	6.707371	0.025686	0.011276	0.778151	9.988228	-0.26923
3	2011	8.996911	0.026231	0.013347	0.845098	10.09179	-0.1867
3	2012	9.498274	0.030741	0.013242	0.90309	10.16611	-0.19511
3	2013	8.584844	0.037216	0.014958	0.954243	10.24354	-0.12712
3	2014	8.653014	0.030728	0.014958	1	10.29551	-0.11217
3	2015	7.454739	0.032441	0.027271	1.041393	10.34168	-0.12757
3	2016	7.469498	0.029443	0.027562	1.079181	10.39382	-0.15396
3	2017	7.510386	0.025442	0.027977	1.113943	10.4001	-0.21165
4	2008	5.134118	0.029152	0.01611	0.90309	9.416141	-0.40084
4	2009	5.103679	0.030959	0.011781	0.954243	9.562305	-0.31699
4	2010	5.593964	0.032037	0.01165	1	9.681829	-0.24215
4	2011	5.51145	0.033663	0.012058	1.041393	9.776011	-0.19109
4	2012	5.073442	0.034589	0.010546	1.079181	9.851973	-0.16367
4	2013	4.41623	0.034558	0.0116	1.113943	9.917805	-0.105
4	2014	4.489196	0.032695	0.013559	1.146128	9.961162	-0.17521
4	2015	4.472138	0.027635	0.020376	1.176091	10.0313	-0.23344
4	2016	5.089169	0.025422	0.023025	1.20412	10.12242	-0.19419
4	2017	5.286886	0.024636	0.024859	1.230449	10.21453	-0.32781
5	2008	5.063889	0.029317	0.014659	0.954243	9.339054	-0.48878
5	2009	5.944444	0.028	0.010462	1	9.511909	-0.43138
5	2010	7.946154	0.020206	0.009028	1.041393	9.667671	-0.26741
5	2011	8.241379	0.029512	0.007293	1.079181	9.770574	-0.31038
5	2012	7.574917	0.030028	0.007637	1.113943	9.887923	-0.13733
5	2013	6.973684	0.033914	0.011153	1.146128	9.943833	-0.13554

5	2014	7.308077	0.021447	0.01343	1.176091	9.999029	-0.19026
5	2015	6.53926	0.016694	0.019011	1.20412	10.07468	-0.20915
5	2016	7.516504	0.019589	0.024998	1.230449	10.15718	-0.20256
5	2017	7.332909	0.019631	0.028279	1.255273	10.24682	-0.26596
6	2008	7.635236	0.032184	0.009483	1	9.541517	-0.18534
6	2009	5.818182	0.033697	0.009939	1.041393	9.615411	-0.24073
6	2010	5.12201	0.035365	0.011333	1.079181	9.709126	-0.12192
6	2011	4.458175	0.038837	0.014455	1.113943	9.759058	-0.40387
6	2012	5.02917	0.040069	0.01439	1.146128	9.906385	-0.03548
6	2013	4.203865	0.040254	0.03703	1.176091	9.921538	-0.24524
6	2014	4.679781	0.033	0.034732	1.20412	10.01677	-0.08164
6	2015	4.243227	0.027129	0.047515	1.230449	10.06176	-0.21959
6	2016	4.679063	0.02628	0.046751	1.255273	10.13708	-0.18071
6	2017	4.769953	0.023202	0.045738	1.278754	10.20144	-0.29402