Factors Affecting Capital Structure Decision: Evidence from Ethiopian Insurance Firms

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This is to certify that the thesis prepared by Saddam Mohammedamin, entitled: Factors Affecting Capital Structure Decision: Evidence from Ethiopian Insurance Firms and submitted in partial fulfillment of the requirements for the Degree of Master of Business Administration in Finance complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

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Capital structure decision is one of the core decisions that financial managers should care for. Different firms will have different choice of funds that are categorized under either debt or equity. But the most important question is what factors to affect their choice of finance and how they affect it. In order to give answer for such question, this study aims to assess the impact of firm specific and macroeconomic factors on capital structure decision in the environment of Ethiopian insurance sector by using seven years data (2007-2013). In order to achieve this aim the researcher regressed profitability, liquidity, business risk, size, growth opportunity, age, GDP growth rate, interest rate, and inflation rate against the dependent variable as measured by total debt ratio. Such regression was made based on random effects model with the help of EVIEWS 6 software. The results of this study suggest that business risk, firm size, age, and inflation rate variables were significant factors affecting leverage of insurance firms in Ethiopia positively; confirming tradeoff and pecking order theories as prominent theories for the sector. On the other hand, profitability, liquidity, growth opportunity, GDP growth rate, and interest rate variables found as insignificant to affect the dependent variable. Thus, Ethiopian insurance firms and their managers are advised to have closer attention on business risk, size, age, and inflation rate factors in order to make optimal decision pertaining to capital structure. Besides, they also advised to give attention first for tradeoff then for pecking order theories of capital structure respectively as per their weight of importance.

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List of Acronyms

AG- Age

AIC- Africa Insurance Company

AWIC- Awash Insurance Company

BJ- Bera Jarque

BR- Business Risk

CLRM-Classical Linear Regression Model

DW- Durbin Watson

EIC- Ethiopian Insurance Corporation

ETB- Ethiopian Birr

GCC- Gulf Cooperation Countries

GDP- Gross Domestic Product

GIC- Global Insurance Company

GLS- Generalized Least Square

GNP- Gross National Product

GR- Growth Opportunity

INF- Inflation Rate

INT- Interest Rate

LIC- Lion Insurance Company

LM- Lagrange Multiplier

LQ- Liquidity

MM- Modigliani and Miller

NBE- National Bank of Ethiopia

NIC- Nib Insurance Company

NICE- National Insurance Company of Ethiopia

NLIC- Nile Insurance Company

NISCO- Nyala Insurance Company

OLS- Ordinary Least Square

PR- Profitability

ROA- Return On Asset

SS- Sum Squared

SZ- Size

UK- United Kingdom

UNIC- United Insurance Company

US- United States

WACC- Weighted Average Cost of Capital

Chapter One: Introduction

For every organization to have a good financing strategy is one of among the decisive factors for its success. As a result, the proportion of debt and equity which make up assets of a firm is one major issue that financial managers should worry about in order to make an optimal capital structure decision which minimizes cost of capital thereby maximizing their firm‟s value. This paper presents and discusses the examination of factors that influence financing decision of Ethiopian insurance entities during the period from 2008-2013. This very first chapter of the paper presents introductory frameworks, those used as a starting point to progress through the other portions of the study. Hence, section 1.1 of this chapter present background of the study, followed by statement of the problem in section 1.2. Section 1.3 is all about objectives of the study including general as well as specific objectives. The fourth section presents hypothesis of the study followed by the fifth section which is about conceptual framework used to relate the dependent and independent variables of the study. Section 1.6 presents significance of the study for various parties whereas section 1.7 represents scope and limitations of the study and followed by the final section of 1.8 which deals with structural map of the paper.

1.1 Background of the Study

Capital structure accounts for a mixture of various debt and equity securities that an entity uses to finance its operations. Similarly speaking, a composition of internally retained profits as well as externally issued debts and shares referred to capital structure or financial structure of a

firm. Capital structure decision also known as financing decision is one of the three major decisions that managers involved in corporate financial management besides capital budgeting and working capital management or operating decisions. It deals with the decision to choose between either equity or debt financing options or both in order to fund operations of a firm. An optimal capital structure is a combination of both or one of equity and debt sources of finances given the value of a firm maximum and keeping its weighted average cost of capital at minimum.

Until the late 1950‟s there was no any strong theoretical ground regarding capital structure subject of corporate financial management. However, in 1958 the two well-known novel prize winner financial economists Modigliani and Miller gave birth for the first modern theory of capital structure in the field of finance with the work named MM without corporate taxes. MM without corporate taxes emphasized that there is no optimal capital structure that will maximize firm‟s value and or minimizing its weighted average cost of capital. This theory holds that in world without taxes, there is no difference between the values of a levered firm (one that includes debt to finance its operation besides equity) and unlevered or an all equity financed firm. Since then, several theories have been developed including MM with corporate taxes, trade off theory, pecking order theory, and agency cost theory.

MM with corporate taxes theory stated that a firm with debt finance usage will have greater value than a fully equity financed firm by the present value of tax shields on debt. This theory implies that a firm‟s value will increase as more and more debt is used to finance its operation. In other word according to MM with corporate taxes, one firm should use debt finance as much as it can borrow in order to achieve an optimal capital structure (Modigliani and Miller, 1963). Static trade off theory stated that there is an optimal capital structure by using debt sources of finance

until the benefit from present value of tax shields on debt equals expected financial distress costs associated with leverage (Myers 1984). On the other side, pecking order theory of capital structure holds that there is no clear cut point for optimal capital structure or debt usage level; however it suggests that firms should follow hierarchy or pecking order of choice to finance their operation with a preference for internal sources of finance to external sources and debt over equity. This theory reasoned the pecking order of financing is due to asymmetric information and signaling problems associated with external sources of finance (Myers and Majluf, 1984). Agency cost theory emphasizes financing choice is based on agency costs associated with principal - agent problem. It investigates a relationship between manager of the firm and outside debt holders as well as equity holders. According to agency cost theory, one firm can achieve an optimal capital structure thereby maximizing its value by balancing the marginal costs of debt due to agency problem with the marginal benefits (Jensen, 1986).

After wards Modigliani and Miller (1958), numerous empirical studies on determinants of capital structure have been conducted in financial and non-financial firms‟ environment. Most of such studies focused on internal (firm specific) factors that can affect financing decision of a firm. According to many researchers, factors such as firm size, liquidity, profitability, growth opportunity, age, non-debt tax shields, tangibility, dividend policy, and risk are the main internal(firm specific) determinants of capital structure decision. For instance Naveed et al. (2010) stated that firm‟s size, profitability, risk, liquidity, and age are important determinants of capital structure for life insurance sector in Pakistan. Lim (2012) described that profitability, firm size, non-debt tax shields, earnings volatility, and non-circulating shares are significant determinants of capital structure in financial sector of China. Najjar and Petrov (2011) stated tangibility of assets, firm‟s size, and liquidity as major factors that influence financial structure

decision in context of Bahraini insurance sector. Muhammad et al. (2013) listed out firm size, risk, liquidity, and profitability as main determinant factors affecting capital structure of insurance companies on their evidence for Pakistan. More recently, Mohamed and Mahmoud (2013) on their evidence from Egyptian insurance sector; conclude that firm size, tangibility of assets, profitability, growth, liquidity, non-debt tax shield, and firm age are major determining factors for firm‟s choice of finance.

As per the researcher‟s knowledge as compared to firm specific determinants, there were only few studies that have been conducted regarding macroeconomic or external determinants of capital structure. Muhammad et al. (2009) found per capita GNP, economic growth, prime lending rate, and financial liberalization as significant external factors that influences the choice of funding. More recent work in African context by Muthama et al. (2013) implied that GDP growth rate, interest rate, and inflation are major macroeconomic or external factors that can influence decision of capital structure for listed firms in Kenya.

In Ethiopian context, as per the researcher‟s knowledge limit there were few studies that have been conducted in relation with capital structure determinants as compared to other countries. Among those studies in Ethiopian context, Amanuel (2011) evidence from manufacturing share companies in Addis Ababa city, Bayeh (2011) and Solomon (2012) separately in case of insurance companies of Ethiopia, Woldemikael (2012) evidence from Ethiopian banking sector and Usman (2013) in case of large tax payer firms of Ethiopia were reviewed by the researcher. As per the best knowledge of a researcher there was no a single empirical investigation in Ethiopian context that examined side by side both internal (firm specific) and external (macroeconomic) determinants of capital structure decision pertaining to Ethiopian insurance

sector. Therefore, the aim of this study was to assess the influence of firm specific and macroeconomic factors on capital structure decision made by Ethiopian insurance firms.

1.2 Statement of the Problem

Since an early influential paper of Modigliani and Miller (1958), capital structure issue in general and optimal capital structure as well as what determines it in particular became an eye catching issue in the area of finance. Since then, several theories have been developed those have almost different views on what factors affect financial structure of a firm and how it can be affected. For instance, trade off theory also known as trade off model of Myers (1984) emphasized there exists an optimal capital structure for a particular firm by equating the present value of benefits from debt (i.e. tax shields) and the present value of costs (i.e. financial distress costs) associated with debt financing. According to this theory the more profitable the firm is the more likely using retained earnings as a financing choice thereby decreasing financial distress (bankruptcy) costs associated with debt and increasing leverage by using its debt capacity that gained through good credit ratings. Thus, according to this theory there is a positive relationship between profitability and leverage. As of trade off theory, Agency cost theory also emphasized the existence of positive relationship between profitability and firm leverage, due to that the benefit debt provides in mitigating problem associated with free cash flows which can lead to use more debt (Jensen, 1986).

In contrary to tradeoff and Agency cost theories, pecking order theory of Myers and Majluf (1984) argues that there exists a negative relationship between firm‟s profitability and its leverage. As compared to the previous two, the later theory is supported by plenty of empirical researchers including Naveed et al. (2010) evidence from Pakistan life insurance sector, Lim

(2012) evidence from financial services listed firms in china, and Muhammad et al. (2013) evidence from insurance companies of Pakistan.

Besides the development of several theories and empirical works in relation with capital structure, what factors affect firms‟ decision regarding their financing choice is still a debating issue in the area of finance. Most of empirical investigations revealed that a capital structure decision is affected by firm specific or internal variables like profitability, size, risk, growth, liquidity, tangibility of assets, and age. But, researchers also divided with the like of such firm specific factors. For instance, Naveed et al. (2010) concludes size, profitability, liquidity, risk and age as major determining factors of capital structure in their evidence from life insurance sector of Pakistan. However, Najjar and Petrov (2011) revealed that tangibility of assets, firm size, and liquidity are the main factors that affect financing choice in their study from Bahraini insurance industry. Another study by Mohamed and Mahmoud (2013) emphasized firm‟s size, age, profitability, tangibility, growth, non-debt tax shield, and liquidity as significant determinants of capital structure on their evidence from Egyptian insurance companies.

On the other side, some researchers including Muhammad et al. (2009) and Muthama et al. (2013) revealed the impact of macroeconomic or external factors on capital structure decision made by firms. According to Muhammad et al. (2009) per capita GNP, prime lending rate, and financial liberalization are the main macroeconomic factors that affect financing decision of firms in context of japan and Malaysia. Their study also revealed that among the regressed variables, financial liberalization is the only significant factor that can affect capital structure decision of firms in Pakistan. Muthama et al. (2013) emphasized macroeconomic factors of GDP growth rate, inflation rate, and interest rate as major determining factors for financing choice in their study on listed companies in Kenya. On the other hand, regression results of a study

conducted by Mehdi et al. (2012) stated that macroeconomic variables of GDP, interest rate, inflation, and exchange rate have no any significant impact on corporate capital structure decision. But, the questionaries‟ results of such similar study revealed the opposite of results in regression analysis by judging exchange rate, inflation, and interest rate as the major factors affecting capital structure of firms listed in Iranian stock exchange.

In light of the above debate, as per knowledge of the researcher there were few studies in Ethiopian context regarding capital structure determinants in general and particularly in case of financial sector as compared to other countries. Bayeh (2011) and Solomon (2012) on their separate research in case of Ethiopian insurance firms, and Woldemikael (2012) in case of commercial banks in Ethiopia; all studied only the impact of firm specific factors on capital structure of firms. Besides lack of examination in relation with macroeconomic or external factors‟ impact on capital structure decision, there exists inadequacy of empirical evidence regarding firm specific factors‟ impact on capital structure of financial sector and overall in Ethiopia as compared with other countries. More specifically, as per the knowledge of a researcher there was no a single empirical work that examined side by side both firm specific and macroeconomic determinants of capital structure decision pertaining to insurance sector of Ethiopia. So, the very purpose of this study was to fill the above stated gap by analyzing the impact of both internal (firm specific) and external (macroeconomic) factors on financing decision of insurance companies in Ethiopia.

1.3 Objectives of the Study

1.3.1 General objective of the study

The general objective of this study was to examine the impact of firm specific and macroeconomic factors on capital structure decision of insurance firms in Ethiopia thereby to identify prominent theory for insurance sector of the country.

1.3.2 Specific objectives

In line with the above general objective, this study intended to achieve the following specific objectives.

- To identify firm specific factors that can affect capital structure of insurance companies in Ethiopia.
- To identify macroeconomic factors that can affect capital structure of insurance companies in Ethiopia.
- To know the magnitude of effects that firm specific and macroeconomic factors have on debt level of Ethiopian insurance firms.
- To discover which capital structure theory is influential in Ethiopian insurance sector.

1.4 Hypothesis

In order to achieve the objectives of this study, nine hypotheses under two major hypothesis categories were tested as presented below;

Hypothesis 1: There is a significant relationship between firm specific factors and capital structure of insurance firms in Ethiopia

Hypothesis 1a: There is a significant negative relationship between profitability and insurance firms‟ leverage in Ethiopia.

Hypothesis 1b: There is a significant negative relationship between liquidity and leverage of insurance companies in Ethiopia.

Hypothesis 1c: There is a significant negative relationship between business risk and leverage of Ethiopian insurance companies.

Hypothesis 1d: There is a significant positive relationship between insurance firms‟ size and their leverage in Ethiopia.

Hypothesis 1e: There is a significant positive relationship between growth opportunity and leverage of firms in Ethiopian insurance sector.

Hypothesis 1f: There exists a significant positive relationship between insurance companies‟ age and their leverage in Ethiopia.

Hypothesis 2: There is a significant relationship between macroeconomic variables and capital structure of insurance firms in Ethiopia.

Hypothesis 2a: There is a significant positive relationship between GDP growth rate of Ethiopian economy and leverage of insurance companies in the country.

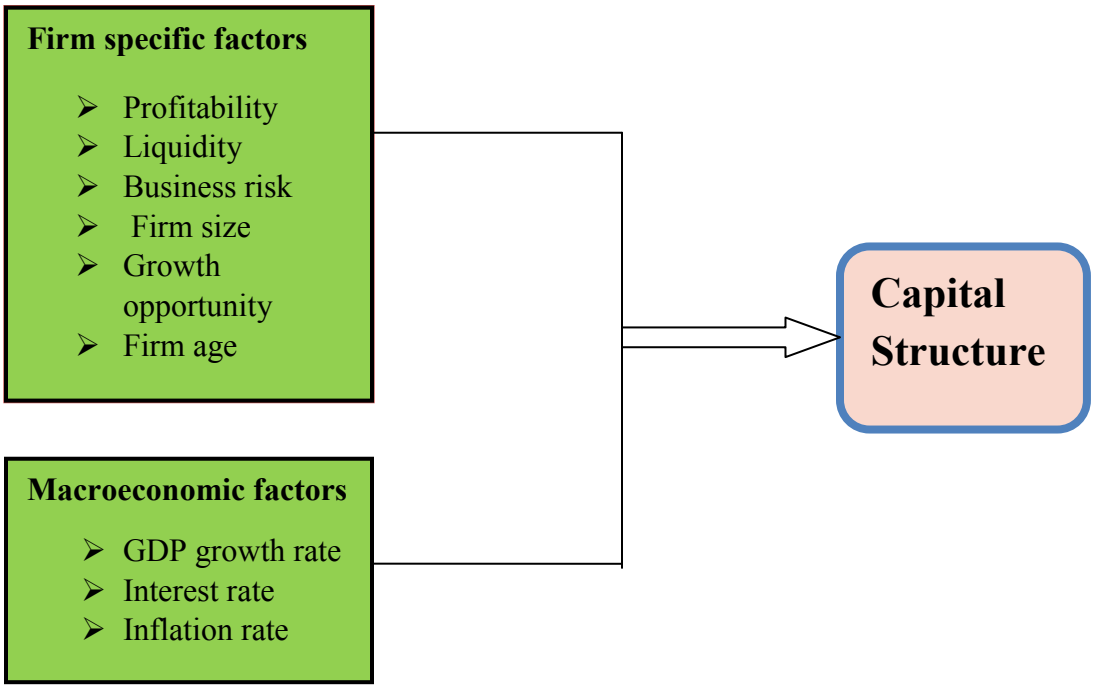
Hypothesis 2b: There is a significant positive relationship between interest rate and insurance firms‟ leverage in Ethiopia.

Hypothesis 2c: There exists a significant positive relationship between inflation rate and insurance firms‟ leverage in Ethiopia.

1.5 Conceptual Framework

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

Figure 1.1: Conceptual Framework



Source: Researcher‟s own construction based on his literature review

1.6 Significance of the study

This study will have significance for various parties. More importantly it will be significant for managers and shareholders of insurance companies, potential investors, and researchers.

- At first glance, the study will be important for management bodies and shareholders of Ethiopian insurance companies by suggesting major factors those will influence their financing decision and the most prominent theory they have to care of as well. Moreover, it will also enable managers to know how they have to treat such factors in order to achieve an optimal capital structure decision thereby enabling to minimize a cost of capital and maximizing their firms‟ value.

- Secondly, this study will be significant for current shareholders of Ethiopian insurance firms and for potential investors of insurance business in Ethiopia by giving an ample knowledge and direction about influential factors those can affect capital structure and their implication for firms in Ethiopian insurance sector.

- Thirdly, this study will be used as a good reference for other researchers in the future those will conduct their research in relation with capital structure determinants in general and in case of Ethiopian insurance sector in particular.

1.7 Scope and Limitations of the study

This study was limited in examining the impact of firm specific and macroeconomic factors on capital structure decision of firms in Ethiopian insurance sector thereby identifying the most dominant theory for the sector. More specifically, the study focused on analyzing major factors those can affect financing decision of insurance companies in Ethiopia and their implication by using seven years data from 2007- 2013. Low level of online accessibility for audited financial statements of insurance companies in the sample frame, lack of updated market value figures for independent and dependent variables due to the absence of active secondary market (stock exchange market) in Ethiopia were the major limitations of this study.

1.8 Structure of the paper

The body of this paper structured with five chapters and different sub sections with in. Chapter 1 deals with Introduction parts starting with background of the study then followed by problem statement, study objectives, hypothesis, conceptual frame work, significance, scope, and finally limitations of the study. Chapter 2 presents Review of Literature which includes a discussion of theoretical as well as empirical works then end with conclusion and knowledge gap from the literature. Chapter 3 discusses about data and methodologies used by the researcher to conduct multiple linear regression analysis. Chapter 4 is all about data analysis and discussion of results; whereas chapter 5 present conclusions and recommendations of the study.

Chapter Two: Review of Literature

Capital structure attributed to a financial mix of debt and equity that one firm relied on; in order to finance its operations. In other word, it is a composition of various sources of finance including internally generated retained cash flows and externally issued debts as well as equity shares that make up assets of a particular entity. Capital structure decision is one of among the three crucial decisions in financial management discipline. Thus, financial managers should worry much about the finance mix of their company in order to structure it optimally by which they can minimize a cost of capital thereby maximizing their firm‟s value. This chapter deals with the discussion of various reviewed theories and empirical studies pertaining to capital structure determinants thereby the development of theoretical as well as empirical frameworks for the study. Specifically, section 2.1 presents various theoretical discussions including MM propositions, Miller with corporate and personal taxes, tradeoff, pecking order, and agency cost theories. Section 2.2 represents the empirical literatures in relation with determinants of capital structure and their implications whereas the final section 2.3 of this chapter is about the conclusion and knowledge gap from the reviewed literature.

2.1 Theoretical Review

2.1.1 MM Without Corporate Taxes

MM without corporate taxes considered as the first modern theory of capital structure which is proposed by financial economists‟ Modigliani and Miller (1958). This theory points out that

without corporate taxes world there is no possibility for optimal capital structure to exist. In other word, according to this theory; no need to worry about capital structure decision issues. Because, it assumes that firm value remain unchanged with and without leverage in the absence of corporate taxes. Thus, according to MM without corporate taxes; the value of leveraged firm is similar with the value of unleveraged (an all equity financed) firm. Similarly speaking, MM without corporate taxes assumes that the more debt a firm uses as a source of finance, the more risky and costly equity will be. Moreover, this theory assumes the absence of any transaction and agency or financial distress costs holding all debts as a riskless thereby both corporations and individuals can borrow unlimited amount of money at a risk free rate.

2.1.2 MM With Corporate Taxes

Modigliani and Miller (1963) on their second version of capital structure theory incorporate corporate taxes effect on leverage. According to this version of capital structure theory, optimal capital structure does exist. This theory holds that the value of one firm increases and its weighted average cost of capital decreases alongside with the increase in leverage. In alternative word the more the debt usage as a source of finance by one firm, the higher its value will be by an amount equal to the present value tax shields on debt. Thus, this theory concludes the value of leveraged firm is greater than the value of unleveraged firm by an amount equal to the present value of tax shields on debt. MM with corporate taxes emphasized that one firm should borrow as much as it can to finance its operation in order to maximize its value by minimizing its weighted average cost of capital at the same time. In other word, this theory holds that one firm can achieve an optimal capital structure by using at least much larger proportion of debt as compared with equity in order to finance its operation.

2.1.3 Miller with corporate and personal taxes

Separately Miller (1973) developed his theory of capital structure by incorporating the effect of both corporate and personal taxes. As of MM with corporate taxes, this theory also postulates the existence of an optimal capital structure for a particular firm. Specifically, this theory predicts the value of a firm increases as it uses more and more debt finance but at a lower rate as compared to MM with corporate taxes. In other word, this theory suggests that one firm can achieve optimal capital structure by which its value will become maximum holding weighted average cost of capital minimum. As of MM with corporate taxes, this theory also stated that in order to achieve such optimal capital structure one firm should use a maximum possible amount of debt as a source of finance.

2.1.4 Tradeoff Theory

Tradeoff theory which was developed by Myers (1984), propose firms will have an optimal capital structure by using debt finance until the present value of benefits from debt equals the present value of costs associated with debt financing. Similarly speaking, this theory stated that an optimal capital structure can be achieved by equating the present value of tax shields on debt with the present value of financial distress (bankruptcy) costs associated with leverage. Moreover, it assumes that investors are risk-neutral and face a progressive tax rate on end-of-period wealth from bonds. Dividend yields and capital gain yields are taxed at a single constant rate. So, such risk neutrality forces the investor to invest into whichever security offers the better expected after-tax benefit. Tradeoff theory also assumes that until the firm faces a constant marginal tax rate on end-of-period wealth by which it can deduct both interest and principal payments, but the investor must pay taxes as far as these payments are received. According to

this theory, non-debt tax shields do exist but it is impossible to arbitrage them across firms or over time. If the firm makes a default in its debt payment, then it will incur high amount of financial distress costs thereby "the optimal capital structure pie shrinks."

In addition, tradeoff model of Myers (1984) explains that an increase in non- debt tax shields and marginal tax rate on bonds will lead to the reduction of optimal debt level; whereas an increase in personal tax rate on debt increases optimal level of leverage. Based on the above stated grounds; trade off theory predicts a positive relationship between profitability and leverage, implying that expected bankruptcy costs are lower and interest tax shields are more valuable for highly profitable firms than less profitable firms. Similarly, this theory predicts that firm size, tangibility of assets, GDP growth rate, interest rate, and expected inflation to have positive impact on firm‟s leverage. Generally, the tradeoff‟s prediction of positive relation between size and leverage is interpreted as large firms will have more debt since larger firms are more diversified as well as more matured and will have lower default risk (Frank and Goyal, 2005).

Tradeoff‟s theoretical prediction of positive relation between GDP growth rate and leverage implies that firms will have more debt in the period of high economic growth than did in lower economic growth. On the other hand, predicted positive relation between interest rate and debt level can be interpreted as firms will prefer more debt than equity in the times of higher interest rates. Because, as interest rate increases; equity has become somewhat more expensive than debt, that leads firms to issue more debt. According to trade off theory positive relationship between inflation and leverage reflects that firms more likely to raise substantial amount of debt in times of inflationary economy than they do in less inflationary state of an economy. This is due to that the real value of tax deductions on debt will be higher when inflation is expected to be high (Frank and Goyal, 2005).

Besides, this theory also predicts that firm‟s growth opportunity and business risk factors to have negative relationship with leverage. The negative relationship among growth opportunity and leverage expressed that growing firms will lose more of their value when they go into distress due to their debt usage (Frank and Goyal, 2004). Finally, as per trade off theory the negative relation of business risk and debt level is an indication of that firms with more volatile cash flows are those more likely to face higher expected costs of bankruptcy. Thus, those firms with volatile cash flows or earnings will likely to use less debt than firms with less volatile cash flows through period (Frank and Goyal, 2004).

2.1.5 Pecking Order Theory

The pecking order theory or pecking order model popularized by Myers and Majluf (1984), postulates that cost of funding increases alongside with asymmetric information. Asymmetric information indicates that managers know about their firm‟s prospects, values and risks better than do outsiders and investors. According to this theory, there is no clear cut point for optimal capital structure to exist. However, Pecking order model explains that firms should follow a hierarchy of order to finance their operation. Because, there are two equity types namely; internal and external, one at the top of the pecking orders hierarchy and the other at the bottom. In another word, this theory suggest that firms should prioritize sources of finance by first preferring internal equity or retained cash flow, then debt and thereafter external equity of share issuance as a last resort. Myers and Majluf (1984) argue that the higher the profitable a firm is the lesser a probability of using more debt due to the availability of internal retained earnings to finance its operations. In contrary manner with tradeoff and agency cost theories, this theory predicts that less profitable firms will use more debt finance because they do not have internal

funds sufficient for their investment programs and due to that debt financing is first on the pecking order of external financing before equity.

According to pecking-order model, the attraction of interest tax shields is assumed as a second-order effect. Leverage ratios change when there is an imbalance of internal cash flow, net of dividends, and real investment opportunities. Highly profitable firms with limited investment opportunities work down to low debt ratios. Firms whose investment opportunities exceed internally generated funds are forced to borrow more (Brealey and Myers, 2003). This indicates that unlike trade off and agency cost theories of capital structure, pecking order model predicts the existence of negative relationship between firm‟s profitability and its leverage implying that more profitable firms will become less levered over time due to utilization of their internally generated cash flows to finance operations. The negative prediction of pecking order theory for the relation of profitability and leverage seems reliable and supported by plenty of empirical studies. It also predicts negative relation of firm‟s leverage with size factor indicating that large firms have been around and are better known thereby they face lower adverse selection and can more easily issue equity as compared to small firms with severe adverse selection problems. Besides, it predicts that tangibility of assets appears to have negative impact on leverage (Frank and Goyal, 2005).

On the other hand, pecking order theory predicts a positive impact of growth opportunities and dividend payout factors on leverage. According to this theory, the positive association of firm‟s growth and its leverage implies that firms with more growing assets should accumulate more debt through time. Pecking order model‟s prediction of positive relation between dividends and leverage of a firm suggests that paying out dividend in form of cash increases financing deficit

which in turn forced a firm to increase the amount of debt issuance in order to fill such deficit (Frank and Goyal, 2005).

2.1.6 Agency Cost Theory

Another important theory of capital structure is agency cost theory which is developed by Jensen and Meckling (1976). This theory emphasize on the cost associated with conflicting interests between mangers, debt holders and equity holders. Jensen and Meckling (1976) stated shareholders - managers and shareholders – bondholders‟ conflicts as major kinds of conflict those will cause agency problem thereby agency costs. They also recognized an agency problem in relation with debt known as risk shifting. Their point is that if the firm is operated with equity finance, only cash flows in non-bankrupt conditions matter. Thus, such firm will tend to accept projects of higher risk but with large payoffs in good conditions as well. It is obvious that this type of behavior is occasionally observed when a firm is in bad conditions but its general importance is debatable. If both kinds of agency conflicts occur, then their relative importance will become ambiguous.

According to agency theory, with the issuance of debt in exchange for stock, managers can bond their promise to pay out future cash flows in a manner that is impossible to achieve by slight dividend increases. By doing so, they can give debt holders the right to put a firm into bankruptcy court if they default with their promise to make the interest plus principal payments. As a result, debt lowers the agency costs associated with free cash flows by decreasing the cash flow available for spending based on the managers‟ judgment. These effects of debt considered as a potential determining factor of a firm‟s financial mix (Jensen, 1986). This theory emphasized that firms with more debt as compared to their equity will benefit from the tax

advantages in that interest payments are tax deductible. On the other hand, this theory also suggests that increasing leverage will have costs as well. Similarly speaking, as a firm becomes more leveraged, the ordinary agency costs associated with debt finance (including bankruptcy costs) tend to increase. Thus, according to agency cost theory one firm can achieve an optimal capital structure thereby maximizing its value by balancing the marginal costs of debt with the marginal benefits (Jensen, 1986).

Agency theory of Jensen and Meckling (1976) also suggest that to control the agency costs caused by free cash flow, firms with more profitable assets will tend use a larger portion of their earnings for debt payments. This will give such firms a debt capacity thereby they can leverage themselves by using such debt capacity due to their good credit ratings. Similarly speaking, according to agency theory firms with higher profits as compared to their investments also benefit from debt which in turn reduces the problem associated with free cash flow (Jensen, 1986). Thus, agency theory predicts a positive relation between firm‟s profitability and its leverage. Besides, as per this theory, agency costs associated with debt are lower for firms with more tangible assets implying a positive relationship between tangibility of assets and leverage. Conversely, agency theory predicts an inverse relation of firm‟s growth opportunity and its debt level emphasizing that the underinvestment problem is more serious for growing firms that leads them to be less leveraged (Frank and Goyal, 2005).

2.2 Empirical Review

2.2.1 Firm Specific Determinants of Capital Structure

Majority of empirical studies in relation with capital structure determinants in general and regarding financial sector in particular fall under this category. Researchers of such empirical studies emphasized firm specific factors those are internal for the firm‟s business environment such as size, profitability, liquidity, tangibility of assets, age, business risk, growth opportunity, and non-debt tax shields to have significant influence on firms‟ financing choice.

For instance, Naveed et al. (2010) on their study for life insurance sector of Pakistan regressed firm specific factors of profitability, size, asset tangibility, age, growth opportunity, liquidity, and risk against the dependent variable of leverage as measured by total debt ratio over the period of seven years from 2001 to 2007. Their regression result showed that size, profitability, liquidity, risk, and firm‟s age are the major factors that influence capital structure decision of life insurance companies in Pakistan. Moreover, they explained that firm size and risk are positively related with leverage while profitability, liquidity, and age are negatively related with the dependent variable of total debt ratio. On the other hand, Naveed et al. (2010) also found that the remaining two variables of growth opportunity and asset tangibility as insignificant to influence debt level of Pakistani life insurance firms. Muhammad et al. (2013) on their study in case of insurance companies in Pakistan over the period of ten years from 2001-2010, regressed six explanatory variables of profitability, size, risk, tangibility, liquidity, and firm growth against the dependent variable of leverage represented by total debt ratio. Their study result revealed that size and risk having positive relationship with leverage; whereas profitability and liquidity have a negative

relationship with the dependent variable. Beyond this they also implied that asset tangibility and growth have no any significant impact on firms‟ financing choice in Pakistani insurance sector.

Sidra et al. (2013), on their evidence from Pakistani banking sector by using a panel data set for the period of 2007 - 2011 found size, tangibility, profitability, growth opportunities, and liquidity as significant determinants of capital structure. More specifically, according to their study results; size and liquidity of the banks in the sample have positive impact on leverage, whereas; tangibility, profitability, and growth opportunities appear a negative relationship with leverage confirming trade-off, agency cost, and pecking order theories for banking sector of Pakistan.

Another study conducted by Najjar and Petrov (2011) examined the impact of five explanatory variables of profitability, growth opportunity, firm size, liquidity, and assets‟ tangibility on leverage as represented by total debt ratio, in case of Bahraini insurance companies for the period from 2005-2009. According to their regression results firm size, liquidity, and asset‟s tangibility are major factors that affect capital structure decision. They also emphasized firm size and asset tangibility to have a positive relationship with firm leverage while liquidity has a negative impact on debt level of insurance companies in Bahrain. Lim (2012) in his study on financial services listed firms of china assessed the relationship between independent variables of profitability, non-debt tax shields, earnings volatility, tangibility, size, growth, and non-circulating shares with the dependent variable of leverage ratio over the period of five years from 2005-2009. He found that profitability, firm size, non-debt tax shields, earnings volatility, and non-circulating shares are major factors that affect leverage of financial service listed firms in China. Lim (2012) also revealed that among the regressed factors only size is positively related with leverage while the others appeared a negative relationship with the dependent variable.

In case of non-financial sector environment as well, numerous empirical studies in relation with firm specific or internal determinants of capital structure have been conducted. For instance, Song (2005) regressed tangibility, non-debt tax shield, profitability, size, expected growth, uniqueness, business risk, and time dummies against the dependent variable of leverage as represented by three measures namely; short term, long term and total debt ratios. Then he found that among the regressed variables only expected growth and uniqueness were insignificant for affecting financing decision of Swedish companies, while the others found to be significant determinants of capital structure. In more specific manner, Song (2005) revealed a negative impact of profitability on all the three measures of leverage, while size is positively related to both total debt and short-term debt ratios; it is negatively correlated with long-term debt ratio. He also found that tangibility has a positive relationship with total debt ratio and long-term debt ratio whereas it appears negative correlation with the short-term debt ratio. According to his study findings another significant variable of non-debt tax shield has a positive effect on short-term debt ratio, while it is negatively correlated with long-term debt ratio. Song (2005) also revealed the significant positive impact of business risk on total and short term debt ratios and a significant negative impact on long term debt ratio.

Another study by Chen and Strange (2005) found that profitability, size, risk, age, and ownership structure factors to have significant power in determining the financing decision of Chinese listed firms. Their study results also suggest that profitability is negatively related to capital structure at a highly significant level. They also found that size and risk of the firms are positively related to leverage ratio in terms of market value measures of capital structure; whereas age factor is positively related to leverage, indicating access of the firms to debt finance is more easily judged by book value. According to their study findings, another significant

variable of ownership structure found to have a negative effect on the capital structure decision of Chinese listed companies. Beyond the above findings, tax factor is found not to have any influence on financing decision of companies investigated.

Attaullah and Safiullah (2007), in case of Pakistani listed non-financial service firms regressed six independent variables to measure their effect on leverage. From their study they found three variables of tangibility, growth opportunities, and profitability as significant determinants of capital structure decision made by listed non-financial firms of Pakistan whereas size, earnings volatility, and non-debt tax shields found insignificant in affecting the dependent variable. Furthermore, they found that profitability and firm growth variables to affect leverage negatively; whereas tangibility factor affecting leverage of Pakistani listed non-financial service firms positively. Hisham and Basil (2007) from their study in case of Jordanian industrial sector for the period of five years from 1996-2000 found profitability, tax, firm size, sales growth rate, market-to-book ratio, assets structure, liquidity, and dividends as influential factors affecting capital structure decision of Jordanian industrial firms. More specifically, they found a positive impact of size, market-book ratio, and sales growth rate factors on leverage while factors including profitability, tax, liquidity, and dividends appear a negative association with leverage of Jordanian industrial firms. Moreover, they revealed that asset structure factor is significant and negative for only short term debt ratio.

Chen (2007), on his evidence from UK firms found Growth, firm size, tax shields, and asset tangibility as significant factors influencing level of leverage measured by long term and short term debt ratios. He also found that tax shields and firm size to have a positive relationship with short term debt whereas asset tangibility has a negative impact on short term debt ratio. Chen (2007) also revealed the positive impact of growth on long term debt of UK publicly listed

companies. Gill et al. (2009), from their study on service sector of United States found that tangibility of assets and profitability were significant factors affecting leverage negatively as measured by total debt ratio. On the other hand, they found that among the regressed factors; effective income tax rate, non-debt tax shields, firm size, and growth opportunities were insignificant for determining capital structure of service firms in the US.

Bas et al. (2009), in case of developing countries found profitability, size, and tangibility as significant firm specific factors to affect capital structure decisions. More specifically, they emphasized the negative impact of profitability and tangibility on leverage whereas firm size appears a positive association with leverage level of small and private firms in developing countries. Sbeiti (2009), evidence from three Gulf Cooperation Countries (GCC) of Saudi Arabia, Kuwait, and Oman found that liquidity, tangibility, and profitability are significant firm specific variables affecting the dependent variable negatively as measured by book leverage and market leverage; while firm size is positively and significantly related to leverage of firms operating in the three countries. Sbeiti (2009) also found that growth opportunities are positively related to book leverage and negatively related to market leverage of firms in all of the three GCC countries investigated. A study by Fitim and Media (2009) on Macedonian listed and unlisted companies for the period of 2005-2007, found only profitability to have impact on leverage of listed companies whereas profitability, tangibility, and firm growth to affect leverage of Macedonian unlisted companies. They also revealed that profitability to have a negative impact on leverage of Macedonian listed companies while it appears a positive relationship with debt level of unlisted companies. Their study emphasized as well that tangibility factor found to have a negative impact on unlisted companies leverage and on the other hand growth appeared a positive relationship with leverage of Macedonian unlisted firms.

Another study by Nadeem and Zongjun (2011) on firms in manufacturing industry of Pakistan; found profitability, liquidity, earnings volatility, and tangibility as firm specific variables related to the debt ratio negatively, whereas firm size is positively associated with debt level of firms investigated. Furthermore, they also found that Non-debt tax shields and growth opportunities were insignificant in determining financing decision of manufacturing firms in Pakistan. Mishra and Gupta (2011) on their evidence from Indian public sector manufacturing companies; found that the capital structure as measured by total debt ratio affected by Asset tangibility, Profitability, growth, and Tax factors. Their study results also uncover growth and tangibility to have direct relationship with debt level while profitability and tax appeared negative association with the dependent variable of leverage. Beyond this they emphasized that other variables of non-debt tax shield, earnings volatility, and size were found to be weak for determining financing decision of public sector manufacturing firms in India.

Another researcher, Cekrezi (2013) found that asset tangibility, profitability, size of firm, risk, and non-debt tax shields were major internal factors those have a significant impact on capital structure of small non listed firms in Albania. In more specific manner, results of similar study explain significant and positive impact of tangibility, risk, and firm‟s size on leverage of Albanian small non listed firms. On the other hand, it uncovered profitability and non-debt tax shields to have a significant negative relationship with leverage of firms in the sample. Beyond this Cekrezi (2013) also found that liquidity factor had a negative but insignificant relation with the dependent variable of leverage as represented by total debt ratio.

In African case, only as compared to macroeconomic or external determinants; there were several studies that have been conducted in the past regarding internal determinants of capital structure in general and with regard to the financial sector environment in particular. For

instance, Amidu (2007) in case of banking sector of Ghana; employed firm specific variables of profitability, growth opportunity, size, tangibility, business risk, and corporate tax then he regressed them against firm leverage represented by three models namely; short term debt, long term debt, and total debt ratios. After the completion of his study, Amidu (2007), found profitability, corporate tax, growth opportunity, asset tangibility, and size factors to influence banks‟ financing decision in Ghana. In more specific manner, he emphasized that size and corporate tax factors to have significant and positive influence on total debt as well as short term debt ratios; whereas profitability and tangibility appeared a significant negative relationship with short term as well as total leverage of Ghanaian banks. Amidu (2007) also found that corporate tax, firm growth, and size variables to affect long term leverage negatively and significantly; whereas profitability and tangibility established a positive link with long term debt level of banks in Ghana. Furthermore, he revealed firm growth factor to have a significant and positive link with short term debt; whereas risk variable appeared as insignificant to influence capital structure of Ghanaian banks in any of the three models. A study conducted by Mohamed and Mahmoud (2013) in case of Egyptian insurance companies took profitability, growth, non-debt tax shields, liquidity, tangibility, size, and firm age as independent variables and regressed them against the dependent variable of leverage ratio as measured by total debt ratio over the period of six years from 2006-2011. From their study; they revealed that among the regressed variables; firm size, tangibility of assets, profitability, and age factors were positively related with total leverage. On the other hand; growth, liquidity and non-debt tax shield appeared to have a significant negative influence on total leverage of Egyptian insurance entities.

Another study made by Ayanda et al. (2013) in case of Nigerian banking sector examined the relationship between total leverage ratio with independent variables of Size, Dividend Payout,

Profitability, Tangibility, Liquidity, Growth, and Tax charge over the period of five years from 2006-2010. Their regression result implied that firm size, dividend payout, profitability, tangibility of assets, growth opportunity, risk, and tax charge were significant factors that influence financing decision of firms in Nigerian banking sector during the study period. More specifically, they found out that tangibility, tax charge, growth opportunity, profitability, and risk to have a negative impact on leverage while firm size and dividend payout factors appeared a direct relationship with total leverage. A study by Tornyeva (2013) on Ghanaian insurance sector from 2002-2007 examined the impact of profitability, size, growth, tangibility, tax charge, and risk factors on leverage as measured by debt ratio. After the completion of such study it was found that Firm size, profitability, and growth to have a statistically significant impact on capital structure. More specifically, Torneyeva (2013) revealed that firm‟s size and growth opportunity to have a significant positive relationship with its leverage while profitability appears a significant negative relationship with the dependent variable. On the other hand, he explained that other factors of tax charge, tangibility, and risk had no any significant explanatory power on debt level of insurance companies in Ghana.

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

term debt. Tesfaye and Minga (2012) also emphasized that dividend payout factor negatively influences leverage in terms of long-term debt.

In Ethiopian case, as per the researcher‟s empirical review; there were several studies regarding internal or firm specific determinants of capital structure in general and for financial industry‟s context in particular. Bayeh (2011) on his study for insurance sector of Ethiopia from the period 2004-2010, took seven factors of profitability, liquidity, growth, age, risk, tangibility, and size as independent variables and regressed them against dependent variable as represented by three models namely; total debt ratio, long term debt ratio, and debt to equity ratio. The results of his study showed that firm‟s growth opportunity, profitability, age, liquidity, and risk found to have a significant impact on capital structure of Ethiopian insurance companies measured by long term debt and total debt ratios. More specifically, his study results suggested that liquidity to have a significant positive impact on long term debt and debt to equity ratios while business risk appeared a significant positive impact on debt to equity and debt ratio. On the hand, he revealed that growth to have a significant negative impact on long term debt and total debt ratios while profitability appear a significant negative impact on long term debt ratio and significant direct impact on total debt ratio. Furthermore, he emphasized a positive and significant impact of firm age variable on all the three dependent variable proxies of long term debt, total debt, and debt to equity ratios. However, among the regressed factors he found that asset tangibility and firm size to have insignificant influence on financial structure of insurance companies in Ethiopia recommending static trade off theory as a dominant theory for the sector.

Another study by Woldemikael (2012) in case Ethiopian banking sector examined the impact of firm specific factors of profitability, liquidity, growth, tangibility, risk, and size on leverage as measured by total debt ratio by using twelve years data from 2000-2011. His findings showed

that profitability, firm size, asset tangibility, and liquidity were important determinants of capital structure for Ethiopian banks suggesting pecking order theory as a pertinent theory for the sector. However, growth opportunity and business risk variables were found to have no influence on capital structure of banks in Ethiopia. Specifically, Woldemikael (2012) also revealed that profitability, liquidity, and tangibility appeared a significant negative relationship with leverage while only firm size positively and significantly related with the dependent variable. Solomon (2012) on his study in case of Ethiopian insurance sector, took firm specific factors of profitability, size, liquidity, growth, non-debt tax shield, dividend payout, age, size, and tangibility as independent variables and regressed them against the dependent variable of leverage as measured by total debt ratio over the period of eight years from 2003-2010 . The results of his study implied size, growth, business risk, and non-debt tax shield to have a significant direct impact on leverage of insurance companies in Ethiopia. On the other hand, his study revealed that factors of profitability, liquidity, tangibility, firm age, and dividend payout had no any significant relationship with capital structure of firms in Ethiopian insurance sector.

Out of the financial sector, Amanuel (2011) in case of manufacturing share companies of Addis Ababa city; regressed firm‟s profitability, earnings volatility, size, age, tangibility, non-debt tax shields, and growth against leverage as measured by total debt, long term debt and short term debt ratios over the period of seven years from 2004-2010. From his regression results; he conclude that tangibility, non- debt tax shields, earning volatility, profitability, and size of the firm were the significant determinants of capital structure for Addis Ababa manufacturing share companies whereas; firm‟s growth and age had no statistically significant impact on leverage in any of the three capital structure models. Specifically, he found that tangibility, profitability,

non-debt tax shields, and earnings volatility to have a significant positive relationship with leverage; whereas size appears a significant and positive relationship with total debt ratio.

Usman (2013), for his study in case of large tax payer share companies in Ethiopia for the study period of 2006-2011 used explanatory variables of profitability, size, age, tangibility, liquidity, non-debt tax shield, growth, dividend payout ratio, and earnings volatility then regressed them against the dependent variable of leverage as represented by long term debt ratio. Usman (2013) found that size, age, tangibility, liquidity, and non-debt tax shield of a firm were positively associated with leverage whereas; profitability, earnings volatility, and dividend payout ratio established an inverse relation with leverage. Moreover, he revealed that among the regressed variables, only Growth opportunity variable was statistically insignificant in affecting capital structure of large taxpayer share companies in Ethiopia, suggesting that, Agency cost theory as more relevant theory for the sector.

2.2.2 External Determinants of Capital Structure

As per knowledge of the researcher there were relatively few studies that have been conducted in relation with macroeconomic or external determinants of capital structure as compared to firm specific determinants. Similarly speaking, majority of empirical studies in the past focused only on assessing firm specific determinants of capital structure. But, some researchers assessed the relationship between macroeconomic or external variables and firms‟ leverage and they found their significance in determining a capital structure. For instance, Muhammad et al. (2009) on their study from three Asian countries of Japan, Malaysia, and Pakistan; examined the impact of per capita GNP, prime lending rate, financial liberalization, efficiency of financial markets, enforcement, and creditor‟s rights on leverage as measured by total debt, long term debt, and

debt to equity ratios for the period of ten years from 1996-2005. Their study result pointed out per capita GNP growth, prime lending rate, financial liberalization, financial markets efficiency, enforcement, and creditors‟ rights as major macroeconomic or external factors that affect firms‟ leverage on aggregate in the three countries. More specifically, their study revealed that financial liberalization and efficiency of financial markets had a significant positive relationship with leverage whereas; creditors‟ rights and enforcement appeared a significant negative relationship with the dependent variable. Muhammad et al. (2009) also found that per capita GNP and prime lending rate were major determinants of capital structure for Japan and Malaysia while financial liberalization was the most decisive factor that affects leverage in all of the three countries.

Bokpin (2009) evidence from 34 emerging market economies; found bank credit, GDP per capita, inflation, and interest rate as significant factors that determine capital structure. More specifically, the findings of similar study revealed that bank credit had a positive and statistically significant impact on financial leverage and the choice of short-term debt over equity. He also indicated a significant negative relationship between GDP per capita and capital structure choices; whereas inflation on the other hand found to have positive influence on the choice of short-term debt over equity. Furthermore, Bokpin (2009) also found that stock market development was insignificant in predicting capital structure decision of firms; while increasing interest rate positively influences firms to substitute long-term debt for short-term debt over equity in the countries investigated.

Another study by Mehdi et al. (2012), in case of Iranian publicly listed firms assessed the impact of GDP growth rate, inflation rate, interest rate, and exchange rate on total leverage by using both questionnaires of qualitative inquiry and regression analysis. The result of their regression analysis shows that there was no significant relationship between the perceived macroeconomic

variables and the way Iranian firms adjust their capital structure. However, majority of questionnaires filled by financial managers listed out the significant effect of exchange rate, inflation rate, and interest rate on capital structure of firms in their order of importance. Furthermore, Mehdi et al. (2012) revealed that GDP growth rate had no any significant impact on corporate capital structure according to the results of both questionnaires and regression analysis.

A study results of Sbeiti (2010), in case of three GCC countries shows that external factor of stock market development as indicated by market capitalization ratio, value traded ratio, and turnover ratio was negatively and significantly correlated with leverage ratios of firms operating in both Kuwait and Saudi Arabia. This implied the more developed a stock market in these countries and their liquidity improves, the lower will be usage of debt as a source of finance. Furthermore, Sbeiti (2010) suggest that interest rate factor was significant for affecting capital structure of firms in Kuwait negatively; whereas it was found as insignificant to affect the dependent variable in Saudi Arabia and Oman. More recently, Cekrezi (2013) found GDP growth rate and interest rate as major macroeconomic variables those have a significant as well as positive impact on capital structure of small non listed firms in Albania.

Given particular attention for Africa, as per the author‟s knowledge, there were few studies conducted in relation with external determinants of capital structure including Muthama et al. (2013) evidence from Kenya and Tesfaye and Minga (2012) evidence from nine African countries. Muthama et al. (2013) in case of publicly listed companies in Kenya; investigated the impact of GDP growth rate, inflation rate, and interest rate on the dependent variable proxies of total debt, long term debt, and short term debt ratios over the decade from 1999-2008. Based on their findings all the three independent variables of GDP growth rate, inflation rate, and interest

rate appeared as significant factors that influence capital structure decision of publicly listed firms in Kenya. Specifically, they emphasized that GDP growth rate found to have a positive impact on long term debt and a negative impact on total debt as well as short term debt ratios. Inflation on the other hand established a negative influence on short term debts. Muthama et al. (2013) also found interest rates to have a positive influence on long term debt as well as total debt ratios; whereas it appeared a negative influence on short term debt ratio.

Tesfaye and Minga (2012) on their evidence from nine African countries of Botswana, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, South Africa, and Tunisia; found overall size of an economy, GDP growth rate, inflation rate, investors rights protection, stock market development, rule of law, and size of banking sector as significant factors for determining financial structure of firms. Specifically, their study result uncovered that size of banking sector, rule of law, and real GDP per capita factors to have a negative impact on leverage; whereas inflation and investor rights protection positively affect capital structure of firms in countries studied. Similar study also found that overall size of an economy was positively related with long-term debt-ratio; while it was negatively correlated with short-term and total debt-ratios. Tesfaye and Minga (2012) also observed that stock market development influence long-term debt-ratio positively; whereas its relationship with short-term debt and total debt ratios was negative and statistically insignificant.

2.3 Conclusion and Knowledge gap

As discussed above in the literature review there are numerous theories including MM propositions, tradeoff, pecking order, and agency cost theories those express what determines capital structure and the issue of optimal capital structure differently. Various empirical studies also conducted regarding determinants of capital structure but almost all they were debating each other. Most of those studies were also limited to investigate internal determinants of capital structure, leaving the inclusion external determinants of capital structure assessment as a potential gap for further study. Such knowledge gap is even wider in Ethiopian context as compared to other countries. In more specific manner, besides lack of assessment in relation with external factors‟ impact on capital structure decision, as compared to other countries there was also insufficiency of empirical studies regarding firm specific (internal) factors‟ impact on capital structure of financial sector and overall in Ethiopia as well. More specifically, as per the researcher‟s knowledge there was no a single study that investigated side by side both firm specific and macroeconomic factors that affect financing decision of insurance companies in Ethiopia. Therefore, this study will be a good opener for further studies in this area of Ethiopian context by filled the above knowledge gap through the examination of both firm specific and macroeconomic factors‟ impact on financing decision of insurance companies in Ethiopia.

Chapter Three: Methodology

This chapter deals with the way a researcher went to achieve objectives of his study and it has seven major sections. Section 3.1 presents research approach used for the study then followed by section 3.2, which is about the study population, sampling and sample size. Section 3.3 of this chapter focuses on data sources that a researcher relied on whereas section 3.4 presents method of data collection instrument employed. Section 3.5 represents description and measurement of variables that used for this study purpose followed by section 3.6 which is about data analysis methods employed. Finally section 3.7 of this chapter discusses model specification issue.

3.1 Research Approach

As described by Creswell (2009), there are three common approaches to conduct a research project in the area of business and social sciences research namely; quantitative, qualitative, and mixed research approaches.

With quantitative approach, the researcher primarily uses postpositive claims for developing knowledge, employs inquiry strategies such as experiments and surveys, and also collects data on pre specified instruments that yield statistical data. In order to achieve the objectives of this study and thereby to give answer for its problems, quantitative research approach was used by the researcher due to appropriateness. By using such research approach the researcher enabled to establish a cause-effect relationship between the independent and dependent variables of the

study, testing various hypothesis and theories there by generalized about factors affecting capital structure decision in Ethiopian insurance sector by using a quite large enough sample size.

3.2 Study Population, Sampling, and Sample Size

According to NBE quarterly bulletin for the first quarter of 2013/14, 17 insurance companies were in operation as at September 30th 2013. Consequently these 17 insurance firms were taken as population of the study to which generalization could be made. Among these population of insurance companies, all companies those established in and/or before 2007 and those started to prepare financial statements on the same time or before were selected purposively by the researcher as a sample. The main reason behind to follow such purposive sampling was that the sake of accessing large enough panel data by selecting insurance firms those had audited financial statements of at least for seven years period. According to this purposive sampling, the oldest 10 Ethiopian insurance firms (i.e. Ethiopian insurance corporation, Africa insurance company, Awash insurance company, Global insurance company, lion insurance company, Nib insurance company, National insurance company of Ethiopia, Nile insurance company, Nyala insurance company, and United insurance company) were taken as a sample to conduct this study. This composition accounts for 58.8 percent of the total population of insurance firms operating in Ethiopian insurance sector. By using such sample the researcher believed to make good generalization about the population of Ethiopian insurance companies.

3.3 Data Sources

In order to achieve objectives of this study, the researcher fully relied on secondary sources of data such as financial reports of insurance companies and annual and quarterly reports of National Bank of Ethiopia (NBE). Specifically, panel raw data for empirical analysis in relation with firm specific variables was obtained from audited financial statements of sample insurance companies for the period of seven years (2007-2013). Financial statement of insurance companies, particularly balance sheet for the year 2007 was used to calculate growth opportunity of each insurance entity in the year 2008. Pertaining to macroeconomic figures, the researcher directly took them from annual and quarterly reports of NBE. In addition to the above core data sources, previous related empirical studies, books, and other important documents were referred by the researcher to make the study robust.

3.4 Method of Data Collection

Document review method of data collection was used by the researcher in order to collect all the necessary information thereby to achieve objectives of the study. As a secondary data collection tool for this study, document review mainly focused on reviewing audited financial statements of sample 10 insurance companies to obtain necessary figures those enabled the researcher to calculate the dependent variable as well as firm specific variables‟ proxies. Besides audited financial statements of sample insurance companies, NBE annual reports and quarterly bulletins as well as other related documents were collected and reviewed by the researcher in order to get necessary figures regarding macroeconomic variables.

3.5 Description and Measurement of Variables

3.5.1 Dependent Variable

According to corporate finance literatures, there are three proxies that commonly used to measure capital structure including market value leverage, book value leverage, and interest coverage ratios. Among those three measures, book value leverage is used in a repeatable manner to measure capital structure in majority of empirical studies pertaining to capital structure determinants. Book value of leverage differed from its market value counterpart in that the former uses book value of equity to determine a capital structure instead of market value of equity that used by the later. Three ratios namely long term debt, total debt (total leverage), and debt to equity ratios are the most widely used ratios to represent book value leverage, in majority of empirical researches in relation with capital structure determinants. However, researchers of previous studies in this area divided to choose among these leverage ratios as a proxy for capital structure. However, majority of researchers including Najjar and Petrov (2011), Solomon (2012), Woldemikael (2012), Mohamed and Mahmoud (2013), and Tornyeva (2013) employed total debt ratio (also known as total leverage) calculated as total debt divided by total assets to measure leverage of firms. Some other researchers like Bayeh (2012), incorporate long term debt and debt to equity ratios, Lim (2012) incorporate long term debt ratio whereas Amanuel (2011) incorporate short term and long term debt ratios besides total debt ratio as a measure of leverage.

As one used by majority of previous researchers; including Najjar and Petrov (2011), Solomon (2012), Woldemikael (2012) Mohamed and Mahmoud (2013), and Tornyeva (2013) the researcher of this study employed total debt ratio (also known as total leverage) to measure

leverage of Ethiopian insurance companies which in turn represent their capital structure calculated as follows:

Total Debt Ratio = Total Liabilities/Total Assets

3.5.2 Independent Variables

Based on the reviewed empirical as well as theoretical literatures, for the sake of conducting this study the researcher used six firm specific variables (i.e. profitability, liquidity, business risk, firm size, growth opportunity, firm age) and three macroeconomic variables (i.e. GDP growth rate, interest rate, inflation rate) those regressed against the dependent variable. Accordingly, the researcher expected these selected variables to have a potential influence on capital structure decision of insurance companies in Ethiopia. Description of each selected explanatory variables for this study; including their measurement and expected relationship with the dependent variable, discussed next.

3.5.2.1 Firm Specific Variables

Profitability

According to various theories and empirical researches, profitability factor is considered as one of the major firm specific factors that determine capital structure of a firm. Trade off theory predicts a positive relationship between profitability and leverage of a firm. This postulates that profitable firms to have more debt implying expected bankruptcy costs are lower and interest tax shields are more valuable for profitable firms which lead them to be more leveraged. Similarly, agency cost theory predicts a positive association of profitability with leverage. According to agency cost theory, firms that generate higher profits relative to their investments also benefit

from the discipline that debt provides in reducing the problem of free cash flows (Jensen, 1986). On the other hand, pecking order theory argues a negative relation of profitability and leverage, implying that more profitable firms will become less levered through time due to utilization of internally generated cash flows for financing their operation. In line with pecking order theory, majority of empirical researches including Naveed et al. (2010), Bayeh (2011), and Woldemikael (2012) confirmed such a negative relation of profitability and leverage. Profitability can be expressed in terms of ROA (Return On Assets), which in turn implies a firm‟s ability to generate profits by using its assets. In order to measure profitability of a firm, majority of researchers in the past employed ROA as measured by net profit before tax over total assets and net profit before interest and tax over total assets. Thus, the researcher of this study measured profitability as the ratio of net profit before tax over total assets, which is similar with Ayanda et al. (2013) and Muhammad et al. (2013). Furthermore, in this study profitability was expected to have a negative relationship with leverage, in line with pecking order theory as well as majority of empirical evidences.

Hypothesis 1a: *There is a significant negative relationship between profitability and insurance firms' leverage in Ethiopia*.

Liquidity

Liquidity indicates the ability of a firm to meet its short term obligations as they come due by using its liquid or short term assets. As measured by the ratio of current assets to current liabilities, liquidity factor employed by numerous researchers as one factor to affect financial structure decision made by firms. According to majority of such empirical studies pertaining to capital structure determinants, liquidity appeared to have negative association with leverage.

This indicates firms with large amount of liquid assets as compared with their short term obligations, will have lesser leverage than do firms with smaller current ratio. Because, a firm with more liquid assets is expected to use such liquid assets to pay for its current debts, which in turn decrease leverage. Majority empirical evidences reviewed by the researcher including Muhammad et al. (2013), Naveed et al. (2010), and Woldemikael (2012) found such a negative relation of firm‟s liquidity and its leverage. Consequently, in this study liquidity measured by current ratio, expected to have a negative relationship with the dependent variable.

Hypothesis 1b: *There is a significant negative relationship between liquidity and leverage of insurance companies in Ethiopia.*

Business Risk

As per Muhammad et al. (2013), Firm specific factor of business risk is the most important factor that can determine capital structure of an insurance sector. Most commonly, earnings volatility of a firm is used to measure its business risk. Pecking order theory assumes a direct relationship of business risk and leverage (Frank and Goyal, 2004). In contrary to their expectation, some of empirical works reviewed by the researcher including Naveed et al. (2010), Bayeh (2011), and Solomon (2012) found a positive relationship of business risk and firm‟s leverage; confirming pecking order hypothesis. In contrary way, trade off theory predicts an inverse association of business risk and leverage, implying that firms with more volatile cash flows face higher expected costs of financial distress and should use less debt. Majority of researchers reviewed by the researcher including Nadeem and Zongjun (2011), Amanuel (2011), Lim (2012), and Usman (2013) confirmed such an inverse relationship of business risk with leverage. Thus, in this study consistent with such empirical evidences and tradeoff theory, business risk was expected to have

a negative impact on firm‟s leverage. Furthermore, with a slight adjustment to as one used by Amanuel (2011) and Cekrezi (2013), the researcher of present study used the ratio of standard deviation of profit before tax to mean profit before tax in order to measure business risk variable.

Hypothesis 1c: *There is a significant negative relationship between business risk and leverage of Ethiopian insurance companies.*

Size

According to major theories of capital structure as well as respective empirical investigations, firm‟s size is one of the few powerful internal factors that can determine capital structure of firms. Trade-off theory predicts a direct relation of leverage and firm size implying that larger firms are typically more mature firms with a reputation in debt markets and consequently face lower agency costs of debt (Frank and Goyal, 2005). On the other hand, pecking order theory postulates an inverse association of firm‟s size and its leverage implying that large firms will have easy access to financial markets and can raise cheaper equity. Besides theoretical debate, vast majority of empirical studies reviewed by the researcher including Amanuel (2011), Woldemikael (2012), and Cekrezi (2013) found a robust positive association of firm size (measured by natural logarithm of total assets) and leverage. As a result, in line with trade off theory and empirical evidences, size represented by natural logarithm of total assets was expected to have a positive relationship with firms‟ leverage in this study.

Hypothesis 1d: *There is a significant positive relationship between insurance firms' size and their leverage in Ethiopia.*

Growth Opportunity

Frank and Goyal (2005) stated growth of a firm as one of among the major firm specific factors that can influence funding choice. The trade-off theory predicts a negative relation between leverage and growth emphasizing that growth firms lose more of their value when they go into distress thereby they will be less leveraged. Similarly, agency cost theory also predicts an inverse relation of firm‟s leverage and its growth, reflecting that agency costs of free cash flow are less severe for growing firms which leads them to use less debt. Conversely, pecking order theory predicts a positive association of firm‟s growth with its debt level, implying that firms with more growth opportunity should become more leveraged through time (Frank and Goyal, 2005). According to some empirical researchers including Bayeh (2011), Usman (2013), and Woldemikael (2012); growth opportunity of a firm and its leverage found to have a negative relationship. However, many others reviewed by the researcher; including Amanuel (2011), Solomon (2012), Tornyeva (2013), and Muhammad et al. (2013) found growth opportunity variable to have a positive impact on firm leverage. Thus, for the purpose of this study the researcher measured growth opportunity in terms of annual percentage change in total assets following majority of researchers including Solomon (2012) and Muhammad et al. (2013) and also expected it to have a positive relationship with overall debt level in line with pecking order hypothesis and majority of empirical findings reviewed.

Hypothesis 1e: *There is a significant positive relationship between growth opportunity and leverage of firms in Ethiopian insurance sector.*

Age

According to various researchers, how much one firm stay in a particular business is one factor that can influence an issuance of debt in different ways. For instance; Solomon (2012) and Faris (2011) found an inverse but insignificant relationship of firm‟s age and its leverage. On the opposite side; researchers including Bayeh (2011) and Usman (2013) found a statistically significant as well as positive association of firms‟ age and their debt level, implying that aged firms are well known and matured then they can raise more debt. Even though, various researchers measured age variable in differed way, in line with Solomon (2012) the researcher of this study measured size as a logarithm value of observation year minus establishment year and hypothesized it to have a positive impact on leverage level of firms.

Hypothesis 1f: *There exists a significant positive relationship between insurance companies' age and their leverage in Ethiopia.*

3.5.2.2 Macroeconomic Variables

GDP Growth Rate

GDP growth factor as measured by annual real gross domestic product growth rate reflects how much a country‟s overall economy is growing as compared to its own one year lagged value. As noted in Frank and Goyal (2004), Trade off theory predicts a positive impact of GDP growth rate of a country on leverage of firms operate within that country. This positive prediction implies that firms will have more debt level in the period of higher economic growth than did in lower economic growth. Results of empirical studies including Cekrezi (2013) and Bas et al. (2009), confirmed positive relationship of GDP growth rate and leverage. Consequently, in this study

GDP factor represented by annual real gross domestic product of an economy and hypothesized to have a direct impact on leverage.

Hypothesis 2a: *There is a significant positive relationship between GDP growth rate of Ethiopian economy and leverage of insurance companies in the country.*

Interest Rate

In studies pertaining to capital structure determinants, most commonly interest rate factor is measured with lending rate of commercial banks within a country. Interchangeably, lending rate represents a cost that firms incur in order to raise debt. Under pecking order theory, there is no effect, or else an increase in the interest rate will tend to reduce debt level (Frank and Goyal, 2004). On the other hand, trade off theory predicts a positive relationship between interest rate and leverage of firms, in that firms will prefer more debt because an increase in interest rate would highly increase the cost of equity (Frank and Goyal, 2004). Researchers including Bas et al. (2009) and Cekrezi (2013) confirmed such a positive prediction of trade off theory for the relationship between interest rate and leverage. Thus, in the present study, interest rate measured as an average lending rate of commercial banks in Ethiopia and expected to have a positive relation with the dependent variable.

Hypothesis 2b: *There is a significant positive relationship between interest rate and firms' leverage in Ethiopian insurance sector.*

Inflation Rate

The third and the last macroeconomic variables employed for this study‟s purpose was inflation rate and measured by annual general inflation rate in Ethiopia. Trade-off theory postulates a positive relationship between leverage and expected inflation. As cited in Frank and Goyal (2005), Taggart (1985) explained that such a positive relation of inflation and leverage is mainly due to features of the tax code, implying that the real value of tax deductions on debt is higher when inflation is anticipated to be high. Empirical studies including Frank and Goyal (2004) and Tesfaye and Minga (2012) confirmed such a positive relation of inflation rate and debt level. In line with the trade off prediction and empirical findings, the researcher of this study hypothesized annual inflation rate variable to have a positive impact on debt level.

Hypothesis 2c: *There exists a significant positive relationship between inflation rate and insurance firms' leverage in Ethiopia.*

In more precise manner, based on the reviewed theoretical as well as empirical literatures; description, measurement, and their expected sign of independent variables employed for the purpose of this study summarized in table 3.1 below.

Table 3.1: Summary of independent variables of the study, their measurement, and hypothetic relationship with the dependent variable

	Variables	Measurement	Expected impact on leverage
Firm specific variables	Profitability	Net profit before tax divided by total assets	(-)
	Liquidity	Current assets divided by current liabilities	(-)
	Business risk	Standard deviation of net profit before tax divided by average net profit before tax	(-)
	Firm size	Natural Logarithm of total assets	(+)
	Growth opportunity	Annual percentage change in total assets	(+)
	Firm age	Logarithm of the difference between observation year and establishment year	(+)
Macroeconomic variables	GDP growth rate	Annual real GDP growth rate	(+)
	Interest rate	Average lending rate of commercial banks	(+)
	Inflation rate	Annual inflation rate	(+)

3.6 Data Analysis Method

The panel data that was collected for the purpose of this study analyzed using descriptive statistics, correlations, and multiple regression analysis through statistical software package of EVIEWS 6. First, based on the collected and processed firm specific as well as macroeconomic data, several descriptive measures were analyzed. These descriptive measures include mean, minimum, standard deviation and maximum values of each explanatory variables as well as the dependent variable of total leverage. Following the descriptive analysis, correlations between all variables including the dependent variable were calculated and analyzed. By using such correlation statistics, the degree of association between explanatory variables themselves as well as with the dependent variable was analyzed.

Thirdly, before running a multiple regression analysis, one model specification test namely hausman test was carried out to choose an appropriate estimation technique among fixed or random effects models. Fourth, based on the regression result, diagnostic tests were made by the researcher in order to assure CLRM assumptions were not violated. Among others; normality, hetroscedasticity, autocorrelation and multicolinearity tests were employed by the researcher. Finally, the researcher run regression thereby analyze the impact of firm specific as well as macroeconomic factors on the dependent variable and discuss results accordingly based on the selected panel estimation model.

3.7 Model Specification

The data type consumed for the purpose of this study was a balanced panel, by which the same number of time-series observations for each cross-section or the same number of cross-sectional units at each point in time, were taken. As Brooks (2008) stated, there are three important merits of a panel data. The first and may be the most important one is that the possibility of addressing a broader range of issues and deal with more complicated problems with panel data that would be impossible with pure time-series or cross-sectional data alone.

Secondly, with panel data it is possible to examine how variables or correlation between them, change over time. Doing this with pure time-series data would often need a long run of data in order to get a sufficient number of observations in order to allow researchers to run any valuable hypothesis tests. But, by summing up cross-sectional and time series data, it is possible to inflate number of degrees of freedom thereby the power of a test, by using information on the dynamic behavior of a quite large number of cross sections at the same point in time. Furthermore, panel data can also enable to cope with problems of multicollinearity that may present if time series are modeled alone.

At third instance, employing a panel data rather than time series or cross sectional data alone; enables to structure the model in proper way and thus to remove the effect of some types of omitted variables bias in regression outputs. By saying this, as one employed in majority of previous panel studies in relation with capital structure determinants including Amidu (2007) and Tornyeva (2013); the general panel equation for this study was:

$$Y_{i,t} = \alpha + \beta X_{i,t} + \varepsilon_{i,t}$$

Where subscript $Y_{i,t}$ represent total debt ratio for each cross sectional unit i in each time series observation t. From the right hand side of the equation, α represent a constant or intercept term and β represent slope coefficients, $\beta 1$-$\beta 9$ of each of the nine explanatory variables. Whereas $X_{i,t}$ represent a set of independent variables, X1- X9 for each cross section at each time series observation year. The final subscript of $\varepsilon_{i,t}$ represent an error term for each cross section at each time period observation.

As brooks (2008) stated, there are two major panel estimation techniques that widely used in research in the area financial namely: fixed effects model and random effects model. In order to choose from this two estimation models, the researcher employed a hausman"s correlated random effects test. From the hausman test result, random effects model was found as an appropriate model of estimation. So, the random effects equation employed for this study; which is based on Solomon (2012) with some purposive modifications to analyze side by side both firm specific and macroeconomic factors" impact on capital structure (represented by total debt ratio) of Ethiopian insurance entities look as follows:

$$LEV_{i,t}=\alpha+\beta 1(PR_{i,t})+\beta 2(LQ_{i,t})+\beta 3(BR_{i,t})+\beta 4(SZ_{i,t})+\beta 5(GR_{i,t})+\beta 6(AG_{i,t})+\beta 7(GDP_{t})+\beta 8(INT_{t})+\beta 9(INF_{t})+\varepsilon_{i}+u_{i,t}$$

Where:

LEV*i,t* = the dependent variable represented by total leverage (total debt ratio) for company *i* at time *t*

α= the constant (intercept)

β1, β2…..β9= respective coefficients for independent variables, out of this β1- β6 represent slope coefficients for firm specific variables and β7- β9 represent coefficients for macroeconomic factors.

PR*i,t* = profitability of insurance firm *i*, in year *t*

LQ*i,t* = liquidity of insurance firm *i*, in year *t*

BR*i,t*= business risk of insurance firm *i*, in year *t*

SZ*i,t* = size of insurance firm *i*, in year *t*

GR*i,t* = growth opportunity of insurance firm *i*, in year *t*

AG*i,t* = age of insurance firm *i*, in year *t*

GDP*t* = real GDP growth rate in year *t*

INT*t* = interest rate in year *t*

INF*t* = inflation rate in year *t*

ε*i*, = cross sectional random disturbance term which is constant over time

u*i,t* = an error term which varies with each cross section and throughout time

Chapter Four: Empirical Analysis and Discussion of Results

The preceding chapter determined the way a researcher used to conduct an empirical analysis and discussion. Consequently, this chapter presents an empirical analysis as well the discussion of results. Specifically, this chapter is composed of five major sections including section 4.1 which is about descriptive analysis, section 4.2 which present correlation analysis, section 4.3 representing model specification test, section 4.4 presents CLRM assumptions and diagnostic tests. Finally, section 4.5 of the chapter presents regression analysis results as well as their discussion.

4.1 Descriptive Analysis

Here in this section, results pertaining to various descriptive measures of total debt or total leverage ratio as well as for the firm specific and macroeconomic explanatory variables were discussed. Table 4.1 below depicts mean, minimum, maximum and standard deviation values of leverage, profitability, liquidity, business risk, firm size, growth opportunity, and age of the sample firms as well as macroeconomic indicators of real GDP growth rate, interest rate, and inflation rate. The total observation for the dependent variable of leverage as well as for independent variables was 60, composed of ten cross sections multiplied by 6 years data for each cross section.

Table 4.1 Summary of descriptive statistics

Variables	Observations	Mean	Maximum	Minimum	Std. dev.
LEV	60	0.686418	0.855600	0.478400	0.076321
PR	60	0.078559	0.200100	-0.278900	0.068457
LQ	60	2.312405	7.700000	0.835000	1.457767
BR	60	0.888877	1.942409	0.434692	0.434180
SZ	60	19.25517	21.69100	16.96000	1.029941
GR	60	0.273062	0.701300	0.004600	0.153395
AG	60	1.140903	1.579784	0.000000	0.261003
GDP	60	0.102667	0.113000	0.088000	0.008823
INT	60	0.119400	0.122500	0.115000	0.002593
INF	60	0.217000	0.364000	0.028000	0.117907

Source: Researcher"s own computation through EVIEWS 6 based on financial statements of insurance companies and NBE reports

As stated in the above table 4.1, it was found that the mean leverage (total debt divided by total assets) of insurance firms in the sample was 68.64 percent, meaning on average those sample insurance firms generated over two third of their financing need for operation from debt sources of finance. Maximum and minimum leverage ratios, as measured by total debt ratio for a sample was 69.88 and 47.84 percent respectively whereas the dispersion of debt ratios among the sample measured with standard deviation was 7.63 percent.

In table 4.1 above, it is also stated that during the study period, sample insurance firms‟ average profitability was 7.85 percent as measured by Return on Asset (ROA). This indicates that those insurance firms under study earned 7.85 cents of before tax profit on every single ETB of their asset investment. Besides, the sample‟s maximum profitability record was a ROA of 20.01 percent while the minimum appeared with a loss of 27.89 percent per every ETB investment of asset. The dispersion of ROA for a sample, measured by standard deviation was 6.85 percent. The mean liquidity ratio (current assets divided by current liabilities) of sample Ethiopian insurance firms under study period was 2.31:1. This implies that those sample insurance firms had two ETB and thirty one cents to pay for every ETB of their short term obligations throughout the study period. It was also found that the minimum and maximum liquidity ratio records for the sample throughout the study period was 7.7 and 0.835 respectively per every single ETB of current liability. On the other hand, the squared deviation of liquidity ratios from the mean for the sample was 1.46, during the investigation period.

Business risk, which was represented by coefficient of variation (i.e. standard deviation of profit before tax divided by mean profit before tax) for the sample in the last six years ranged between minimum of 0.435 up to a maximum of 1.94. Average risk of doing business for sample insurance firms under investigation period was 0.889; whereas the riskiness dispersion represented by standard deviation, was 0.434. It was also found that from 2008-2013, the average size of insurance firms under study as measured by natural logarithm of total assets was 19.25 with a standard deviation (dispersion between insurance firms size) of 1.03. The size of sample insurance firms in six years period of study ranged from a minimum of 16.96 up to a maximum of 21.69. Furthermore, it was also found that among the whole sample of ten insurance firms,

there was no any larger insurance firm than government owned EIC, which in turn took all maximum size (i.e. natural log of total asset) values within a sector throughout the study period.

In terms of growth opportunity (annual percentage growth of total assets) for insurance firms under study, the maximum growth record during the study period was 70.13 percent whereas the minimum was 0.46 percent. The mean growth opportunity for a sample throughout the study period was 27.31 percent. This indicates that on average sample insurance firms‟ asset grown at a rate of 27.31 percent per annum during the study period. The dispersion of such growth of insurance firms as measured by standard deviation was 15.34 percent per annum, during the six years of study period. According to descriptive statistics for age variable which was represented by the logarithm value of insurance firm‟s age, the mean was 1.14 whereas the standard deviation of age difference was 0.26. For the sample throughout a study period the maximum age of an insurance company in terms of logarithm was 1.58 years for EIC while the minimum was nil for LIC.

Tables 4.1 also summarize descriptive statistics pertaining to macroeconomic explanatory variables of real GDP growth rate, interest rate, and inflation rate those were constant for all cross sections but varied over time. The mean real GDP growth rate of Ethiopian economy in the last six years of observation period was 10.27 percent per annum with a standard deviation of 0.88 percent. During the study period a maximum real GDP growth rate was registered in the year 2011 with 11.33 percent whereas the minimum was one that registered in the succeeding year of 2012, which was 8.8 percent. The mean interest rate represented by average lending rate of commercial banks, during the study period was 11.94 percent. This implies that on average insurance firms charged nearly 12 cents per annum for every single ETB they borrowed throughout six years of investigation period. It was also found that during six years of study

period, average lending rate of commercial banks ranged from a minimum of 11.5 percent in 2008 up to a maximum of 12.25 percent in 2009 and 2010. The standard deviation of average lending rate during the period was 0.26 percent, which indicates the existence relative stability in interest rate structure of commercial banks in Ethiopia. Another macroeconomic variable employed by the researcher in order to examine its explanatory power on leverage on behalf of capital structure decision made by Ethiopian insurance firms was annual inflation rate. As stated in table 4.1, average inflation rate of Ethiopian economy during the last six years of observation was 21.7 percent per annum whereas the standard deviation was 11.79 percent. Through the study period Inflation rate ranged from 2.8 percent per annum up to 36.4 percent per annum. This indicates the existence of highly fluctuating inflation trend in Ethiopia for the last six years of observation period. The minimum annual inflation rate was recorded in the year 2010 whereas the maximum was one that registered in 2009.

4.2 Correlation Analysis

Here in this section the associations of independent variables with the dependent variable of leverage as well as the independent variables themselves were analyzed and discussed by using a correlation matrix. As described by Brooks (2008), correlation measures the extent of linear relationship between two or more variables. If two variables are correlated, it doesn‟t mean that one variable affects the other and vice versa, rather it means that they are being treated completely in the same manner. Similarly speaking, once we are sure for a linear association between the two variables and on average their movements are related to an extent which is given by the correlation coefficient. A correlation coefficient of two variables ranges between -1 and +1. A correlation coefficient of negative one implies that a perfect negative linear relationship between the two variables while positive one indicates a perfect positive linear

association. On the other extreme, a correlation coefficient of zero indicates that the absence of any linear relationship between two variables. Table 4.2 below presents a correlation matrix which shows the degree of linear relationship between the dependent and independent variables of the study.

Table 4.2 Correlation Matrix of Dependent and Independent Variables

	LEV	PR	LQ	BR	SZ	GR	AG	GDP	INT	INF
LEV	1.000									
PR	0.010	1.000								
LQ	0.020	-0.007	1.000							
BR	-0.200	-0.392***	0.143	1.000						
SZ	0.470***	0.452***	-0.159	-0.701***	1.000					
GR	0.050	0.092	0.020	0.363***	-0.147	1.000				
AG	0.380***	0.399***	0.126	-0.516***	0.607***	-0.346***	1.000			
GDP	-0.220*	-0.282**	0.088	0.000	-0.257**	-0.313**	0.061	1.000		
INT	-0.001	0.119	0.009	0.000	0.008	-0.020	0.092	-0.244*	1.000	
INF	0.202	-0.186	0.003	0.000	-0.070	0.063	-0.002	-0.393***	-0.162	1.000

*** indicates correlation is significant at 1% level, ** indicates correlation is significant at 5% level and * indicates correlation is significant at 10% level.

Source: Researcher‟s own computation through EVIEWS 6 based on financial statements of insurance companies and NBE reports

According to the correlation matrix above and respective significance levels; explanatory variables of firm size, age, and real GDP growth rate of an economy found to have a significant linear association with the dependent variable of leverage. From these independent variables firm‟s size and its age found to have a strongly significant positive correlation with leverage; whereas GDP growth rate appeared a negative and statistically significant association with the dependent variable at 10% level. More specifically, the correlation coefficient of size variable with leverage was +0.47 and significant at 1% level, which is similar with what the researcher expected. This indicates that the larger a size of a firm the more debt it will use to finance its operations. In other word, firms with larger size in terms of total assets were more leveraged than small size firms with smaller total asset value in case of Ethiopian insurance sector. Another firm specific variable of age appeared a correlation coefficient of +0.38 with debt ratio and it was significant at 1% level. This indicates that aged firms were more leveraged than younger firms in Ethiopian insurance sector. The only macroeconomic variable which is found to have significant linear association with the dependent variable was GDP growth rate. The correlation coefficient between Real GDP growth rate and leverage was -0.22 and statistically significant at 10% level. This implies that in the year of higher economic growth, sample Ethiopian insurance firms borrow less as compared with a year of lower economic growth.

On the other hand, as stated in table 4.2, the remaining 6 independent variables found to have insignificant correlation with leverage represented by total debt to total asset ratio. The correlation between independent variables of the study is presented and discussed in multicolinearity test portion of this paper. Even though the correlation analysis gave some hints on what factors to relate with capital structure of insurance firms in Ethiopia, a more detail

discussion of results and conclusions to be made based on the multiple regression analysis results due to that regression is more powerful as well as flexible tool than correlation (Brooks, 2008).

4.3 Model Specification Test

The first step before running a regression analysis and thus to investigate significant factors that can affect financing decision of Ethiopian insurance firms, is to specify an estimation model. As noted by Thomson et.al. (2013) panel data can be estimated using four distinctive estimation models including pooled cross section estimation, fixed effect estimation, random effect estimation, and first difference estimation techniques. As per Brooks (2008), pooled regression estimation assumes that the intercepts are the same for each firm and throughout each year of observation period. This could be improper assumption, because it might create firm specific effect called heterogeneity which is constant over time. On the other hand, in first difference estimation the intercept and the unobserved effect are differenced away. Moreover in first difference estimation we have to lag the model one period and subtracted it from the original model to obtain a first difference equation. But, first difference panel estimation is appropriate if and only if a strong autocorrelation between the residuals observed.

According to Brooks (2008), among others the two most widely used panel estimation approaches that can be appropriate for a research in the area of finance are fixed effects model and random effects model. Fixed effects model allow the intercept in the regression model to differ throughout cross-sections but not over time, whereas all of the slope estimates are fixed both for individual cross sections as well as over time. Random effects model also known as the error components model, as of fixed effects; propose that different intercepts for each cross sections that do not vary over time, with the relationships between independent and dependent

variables assumed to be the same both for each cross-section and over time. However, the difference between the two is that under a random effects model, the intercepts for each cross-sectional unit are assumed to arise from a common intercept α (which is the same for all cross-sections as well as over time), plus a random variable εi that varies cross-sectionally but not over time.

As per Brooks (2008), the random effects model is more proper when the cross sections in the sample are randomly selected from the population; while a fixed effect model is more efficient when cross sectional units in the sample effectively comprise the entire population. More specifically, the GLS transformation procedure involved under the random effects model will not eliminate the explanatory variables that are constant over time, and then their impact on the dependent variable can be accounted. Furthermore, since there are fewer parameters to be estimated in random effects model (due to the absence of dummy variables) and thereby degrees of freedom are saved, the random effects model should yield more efficient estimation than the fixed effects one. Moreover, random effects model is appropriate if number of cross sections is larger and time period observations are smaller, and if the assumptions underlying random effects model hold, random effect estimators are more efficient than fixed effect estimators (Gujarati, 2004). On the other hand, the random effects approach has a major problem that it is appropriate only when the composite error term is not correlated with all of the independent variables. This assumption of random effect is more stringent than its correspondent one in the fixed effects occasion, because with random effects we thus require both cross sectional error term and new individual observation error term to be uncorrelated with all explanatory variables. This can also be interpreted as a consideration of whether any unobserved omitted variables (that were allowed to have different intercepts for each cross section) are not correlated with the

selected explanatory variables. If error terms and independent variables are not correlated, a random effects model can be better to use; if not the fixed effects one is appropriate (Brooks, 2008).

In order to test validity of the above assumption thereby to choose appropriate model for the study, a hausman test was carried out by the researcher. The hausman test as presented below tests the null hypothesis of random effects model is appropriate against the alternative that makes fixed effects model appropriate. So, if the probability of hausman chi-square is less than 0.05, the researcher could use fixed effects model otherwise random effects could be used.

Table 4.3 Correlated Random Effects - Hausman Test

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.997180	5	0.1092

Source: Researcher"s own computation through EVIEWS 6 based on random effects estimation result

As shown in table 4.3 above, the probability of chi-square statistics for a hausman test is 0.1092, which is insignificant to reject the null hypothesis, in support of random effects estimator. So, regression analysis and discussion of results in the next sections of this paper were made based on a random effects model of panel estimation.

4.4 CLRM Assumptions and Diagnostic Tests

One last step before discussing the results of a regression analysis thereby to conclude about what factors to determine capital structure of insurance firms was to assure that whether the model was consistent with classical linear regression model (CLRM) assumptions. Basically, there are five major assumptions underlying CLRM as described by Brooks (2008). The first of this assumptions required that the average value of an error terms to be zero. This assumption is no more vulnerable for violation, if a constant term is included in the regression equation. The second assumption holds that variance of the error terms is constant. This second assumption is known as the assumption of homoscedasticity. If the variance of the errors is constant, it is said to be homoscedastic. On the other hand, the violation of this assumption is known as heteroscedasticity. The test associated with this assumption also called heteroscedasticity test. The third assumption stated that covariance between the error terms is zero over time for time series data or over individual cross sections, for cross sectional data. Similarly speaking, this assumption holds that the errors are uncorrelated with one another. If the errors are correlated with one another, they are known to be „autocorrelated" or „serially correlated" and the test to detect such problem is called autocorrelation tests. The fourth major assumption that underlies CLRM stated that the explanatory variables are not correlated with the errors of an estimated model. Whereas, the fifth and the last major assumption of CLRM hold that the disturbances are

normally distributed. To check whether the disturbances are normally distributed, a normality tests can be made.

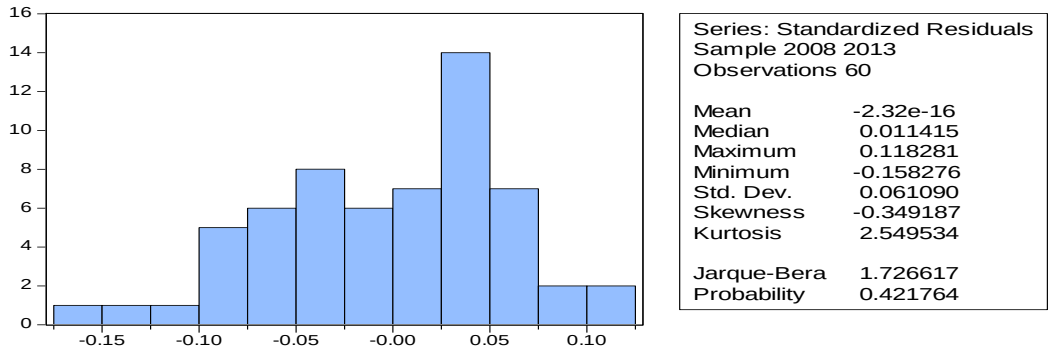
Beyond the above five major assumptions, there are also other few important implicit assumptions that bounds CLRM. The first one is that the explanatory variables are not correlated each other. If there is no relationship between the explanatory variables, they are known to be orthogonal each other. If explanatory variables highly correlated each other, it is called a multicllinearity problem. This problem can be checked by running a multicollinearity test. The second implicit assumption holds that the appropriate „functional form" is linear. This implies that the appropriate model is assumed to be linear in the parameters as well as in the bivariate case, the relationship between the dependent and independent variables can be depicted with a straight line. The linearity and appropriateness of a functional form can be tested using Ramsey reset test. The third implicit assumption of CLRM is that the parameters or coefficients of regressors are constant for the whole sample, both for the data period used for model estimation, and for any subsequent period used in the construction of estimations. This assumption can be tested using parameter stability tests (Brooks, 2008).

In line with majority of previous researchers pertaining to capital structure determinants like Woldemikael (2012) and Bayeh (2011), the researcher of this study employed four diagnostic tests with respect to four major CLRM assumptions. These four tests were normality, heteroscedasticity, autocorrelation, and multicollinearity tests. Consequently, the following section presents the discussion of results from such diagnostic tests.

4.4.1 Normality Test

The assumption of normality holds that the disturbances of a regression equation are normally distributed. The normality can be fulfilled with a bell shaped distribution which has a kurtosis of 3 and a skeweness value of 0. As per brooks (2008), the most widely applied test for normality is a Bera Jarque or BJ test. Accordingly the researcher employed this test in order to check normality by using random effect regression output.

Figure 4.1 Normality Test- BJ



Source: Researcher"s own computation through EVIEWS 6 based on random effects regression result

The normality can be safe until the probability of BJ is in excess of 0.05, which means the null hypothesis of normally distributed error terms is not to be rejected. On the other hand, if the p-value of a BJ test is below 0.05, the null hypothesis of normally distributed error terms to be rejected. Thus, as figure 4.1 depicts above, the probability of BJ is 0.42, which is sufficiently in excess of 0.05. So, the null hypothesis was not to be rejected, confirming that the residuals were normally distributed.

4.4.2 Heteroscedasticity Test

In order to assure whether the model used for this study is in line with the assumption of homoscedasticity, a heteroscedasticity test was conducted by the researcher. Specifically, the researcher conducted the most popular test for hetroscedasticity; namely white‟s general test for hetroscedasticity. As per Brooks (2008), white‟s test is particularly useful because it makes fewer assumptions about the possible form of heteroscedasticity. Table 4.4 below presents a white‟s general test for hetroscedasticity, with a null hypothesis (H0): variance of the error terms is constant (i.e. there is homoscedasticity) by using 5% significance level of test.

Table 4.4 Heteroskedasticity Test: White

F-statistic	7.943802	Prob. F(50,9)	0.0012
Obs*R-squared	58.67057	Prob. Chi-Square(50)	0.1875
Scaled explained SS	44.79032	Prob. Chi-Square(50)	0.6819

Source: Researcher‟s own computation through EVIEWS 6 based on a regression result

As it is shown above, table 4.4 presents three different versions of a heteroscedasticity test; including F-, chi-square (LM), and Scaled explained SS‟ versions of tests. P-value for the F-version of the test was 0.0012, which is significant even at 1% level, implying that the null hypothesis of homoscedasticity is to be rejected. While the other two versions of the test; chi-

square (LM) and Scaled explained SS‟ versions were not significant to reject the null hypothesis of homoscedasticity because they were in excess of 0.05. In other word, based on F- test there was a problem of heteroscedasticity; whereas based on the chi-square (LM) and Scaled explained SS‟ versions there was no evidence for heteroscedasticity problem. According to Brooks (2008), if only one of the three versions of white‟s heteroscedasticity test is significant, the decision of the test will be ambiguous. But, as used by various empirical studies including Solomon (2012) and Abate (2012), the most widely employed and dependable test is the chi-square (LM) version. Thus, depending only on the LM version of a test presented in table 4.4, the null hypothesis of homoscedastic error terms is not to be rejected, indicating that heteroscedasticity was not a serious problem for this study.

4.4.3 Autocorrelation Test

Autocorrelation test is a test that can be used to check whether the errors are uncorrelated each other thereby to assure whether the model was in line with the fourth assumption that required not serially correlated error terms. The researcher of this study applied a Durbin Watson or DW test in order to detect the problem of autocorrelation. As per Brooks (2008), DW test is a valid test until three conditions are met. First, there must be a constant term in the regression equation. Secondly, the explanatory variables of a model must be non-stochastic (i.e. not correlated with the error terms). The third and final condition to be met, in order to use a DW test as a valid test for autocorrelation is that there must be no lags of the explained variable in the equation. The model used for the purpose of this study met the above three conditions. As a result, DW test was used by the researcher to detect autocorrelation.

As Brooks (2008) stated, the non-rejection region for a DW test is between the upper limit (i.e. dU) and 4 minus the upper limit (i.e. 4-dU). More specifically if DW is equal or near to 2, there is no or little evidence of autocorrelation between the residuals. Similarly speaking, the null hypothesis would not be rejected if DW is equal or near 2. On the other hand, if the DW stat falls between dL and 0, the null hypothesis of no autocorrelation is to be rejected in favor of positive autocorrelation. If DW falls between 4-DL and 4, the null hypothesis of no autocorrelation will be rejected in favor of negative autocorrelation of residuals. However, if the DW stat result is between the upper critical value dU and the lower critical value of dL, the null hypothesis of no autocorrelation will neither be rejected nor not rejected.

The DW stat value from the random effect regression output of this study as presented in table 4.6 was 1.46. From DW table, critical values of dL and dU for 9 regressors and 60 observations at 1% significance level, is 1.108 and 1.771 respectively. Thus, the DW stat of 1.46 falls between dL and dU of the inconclusive boundaries. Consequently, the null hypothesis of no autocorrelation was neither be rejected nor not rejected, putting the decision inconclusive.

4.4.4 Multicollinearity Test

To recall that one of among implicit assumptions of CLRM is orthogonality, which required the independent variables of the study to be uncorrelated each other. In order to assure this implicit assumption, the researcher of present study used a correlation matrix of explanatory variables as presented in table 4.5 below.

Table 4.5 Correlation Matrix of Explanatory Variables

	PR	LQ	BR	SZ	GR	AG	GDP	INT	INF
PR	1.0000								
LQ	-0.0071	1.0000							
BR	-0.3919	0.1429	1.0000						
SZ	0.4520	-0.1591	-0.7014	1.0000					
GR	0.0922	0.0201	0.3632	-0.1472	1.0000				
AG	0.3988	0.1258	-0.5165	0.6073	-0.3465	1.0000			
GDP	-0.2821	0.0884	0.0000	-0.2574	-0.3133	0.0614	1.0000		
INT	0.1195	0.0094	0.0000	0.0082	-0.0203	0.0922	-0.2445	1.0000	
INF	-0.1862	0.0028	0.0000	-0.0698	0.0630	-0.0025	-0.3929	-0.1620	1.0000

Source: Researcher"s own computation through EVIEWS 6 based on financial statements of insurance companies and NBE reports

As per Gujarati (2004), multicollinearity is a severe problem if the correlation between two independent variables is greater than 0.8. But, as it is shown in table 4.5 above, the highest observed correlation for explanatory variables of this study was -0.7 between firm size and business risk variables, which is below 0.8 and can be reasonably ignored. Thus, there was no evidence of near collinearity among explanatory variables. In other word, multicollinearity was not a serious problem for this study.

4.5 Regression Analysis and Discussion of Results

Here in this section of the study, the regression analysis presented which is followed by discussion of results obtained from the analysis based on random effects model of panel estimation. Thus, the next two sub-sections, i.e. 4.5.1 and 4.5.2 represent regression analysis and discussion of results from which conclusion to be made about factors affecting capital structure decision as represented by leverage of Ethiopian insurance firms.

4.5.1 Regression Analysis

To recall from chapter three the random effects model used throughout this study which equates firm specific plus macroeconomic explanatory variables with the dependent variable is:

$$LEV_{i,t}=\alpha+\beta1(PR_{i,t})+\beta2(LQ_{i,t})+\beta3(BR_{i,t})+\beta4(SZ_{i,t})+\beta5(GR_{i,t})+\beta6(AG_{i,t})+\beta7(GDP_{t})+\beta8(INT_{t})+\beta9(INF_{t})+\varepsilon_i+u_{i,t}$$

Where $LEV_{i,t}$ = the dependent variable represented by total leverage (i.e. total debt ratio) for company i at time t

α= the constant (intercept) term

β1, β2…..β9= respective coefficients for independent variables, out of this β1- β6 represent slope coefficients for firm specific variables and β7- β9 represent coefficients for macroeconomic factors.

$PR_{i,t}$ = profitability of insurance firm *i*, in year *t*

$LQ_{i,t}$ = liquidity of insurance firm *i*, in year *t*

$BR_{i,t}$ = business risk of insurance firm *i*, in year *t*

SZ*i,t* = size of insurance firm *i*, in year *t*

GR*i,t* = growth opportunity of insurance firm *i*, in year *t*

AG*i,t* = age of insurance firm *i*, in year *t*

GDP*t* = real GDP growth rate in year *t*

INT*t* = interest rate in year *t*

INF*t* = annual inflation rate in year *t*

ε_i = random disturbance term for each cross section which is constant over time

$u_{i,t}$ = an error term which varies across each cross section and throughout time

In order to choose from the most widely used panel estimation models of random effects and fixed effects models, the researcher employed a hausman test of correlated random effects. The hausman test result as it is shown in table 4.3, suggested that random effects model was appropriate and preferable than the fixed effects one. So, the regression analysis as well as discussion of results regarding factors that influence capital structure decision of insurance firms in Ethiopia was made based on the random effects estimation results which is presented in table 4.6 below.

Table 4.6 Random Effects Estimation Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.680813	0.623433	-1.092038	0.2801
PR	-0.153861	0.132295	-1.163016	0.2503
LQ	-0.004216	0.006833	-0.616940	0.5401
BR	0.069785	0.039773	1.754571	0.0855*
SZ	0.048968	0.017021	2.876887	0.0059***
GR	0.036458	0.053812	0.677515	0.5012
AG	0.113980	0.043512	2.619503	0.0116**
GDP	1.024938	1.127429	0.909093	0.3677
INT	0.859176	2.783086	0.308713	0.7588
INF	0.167502	0.071689	2.336503	0.0235**
R-squared	0.379587	F-statistic		3.399054
Adjusted R-squared	0.267913	Prob(F-statistic)		0.002517***
Durbin-Watson stat	1.456308			

*** denotes significant at 1% level, ** denotes significant at 5% level and * denotes significant at 10% level

Source: Researcher‟s own computation through EVIEWS 6 based on financial statements of insurance firms and NBE reports

As depicted in random effects result table 4.6 above, size variable (with p-value of 0.0059) was strongly significant at 1% level and had a positive impact on leverage. Besides, age with p-value of 0.0116 and inflation rate with p-value of 0.0235 were significant at 5% level to affect leverage positively. As it is shown in table 4.6, Business risk variable also found to have a significant positive impact on leverage at 10% level with a p-value of 0.0855. On the other hand, it was also found that profitability and liquidity, to have a negative and insignificant relationship with leverage; whereas growth opportunity, GDP growth rate, and interest rate variables appeared a positive but not significant relationship with the dependent variable. Besides, the bottom of table 4.6 shows the R-squared of 0.3796, which implies that around 38% of the variations in leverage was explained by the independent variables (i.e. profitability, liquidity, business risk, size, growth opportunity, age, GDP growth rate, interest rate, and inflation rate) used for the model. The adjusted R-squared figure of 0.2679 indicates that around 27% of the variations in leverage was explained by the four significant factors of size, age, business risk, and inflation rate. Furthermore, the regression F-statistic which tests the null hypothesis that all of the slope parameters are jointly zero takes a value of 3.399 with a p-value of 0.0025 attached to it. This indicates that the null hypothesis should be rejected even at 1% level, in favor of the alternative that all slope parameters are not insignificant.

4.5.2 Discussion of Results

The previous sub-section highlighted the regression analysis results based on random effects estimation. Here in this sub-section, detailed discussions of findings pertaining to firm specific and macroeconomic determinants for capital structure of insurance firms in Ethiopia presented.

4.5.2.1 Firm Specific Variables

Profitability

Based on previous theoretical and empirical works, profitability variable was expected and hypothesized to be one of the most significant factors to affect capital structure of Ethiopian insurance entities. But, the results of random effects model as presented in table 4.6 indicated that the coefficient of profitability was negative as expected but not statistically significant (with p-value of 0.25) to explain capital structure of Ethiopian insurance companies. Therefore, hypothesis 1a (i.e. there is a significant negative relationship between profitability and leverage) was to be rejected. This result is in contrary to majority of previous studies including Woldemikael (2012) and Bayeh (2011) in terms of significance; but it is in line with a study by Solomon (2012) in case of Ethiopian insurance sector both in terms of significance and sign. Moreover, the negative coefficient of profitability factor was as expected by the researcher and in line with pecking order theory; but, it was not significant.

Liquidity

The results of random effects estimation in table 4.6 showed that the liquidity variable (with p-value of 0.54) found to have a negative and highly insignificant relationship with the dependent variable of leverage. In other word, liquidity variable had no any significant influence on

financing choice of insurance companies in Ethiopia, implying that hypothesis 1b (i.e. there is a significant and negative relationship between liquidity and leverage of insurance companies in Ethiopia) was to be rejected. This finding is consistent with the findings of previous researcher such as Solomon (2012), Amanuel (2011), and Cekrezi (2013).

Business Risk

Initially, business risk variable represented with standard deviation of profit before tax over mean profit before tax; was expected to influence leverage of firms in Ethiopian insurance sector negatively. However, the random effect regression result as presented in table 4.6 showed in an opposite manner that business risk variable found to have a significant positive impact on the dependent variable. The positive coefficient of business risk (with p-value of 0.0855) was significant to influence capital structure of Ethiopian insurance firms at 10% level of significance. This implies that firms with more volatile before tax earning were more leveraged than firms with less volatile before tax earning in Ethiopian insurance sector, which is consistent with the pecking order theory. Similarly speaking, Ethiopian insurance firms with volatile earnings tend to rely more on debt than equity. From an empirical perspective, this finding is similar with the findings of previous studies such as Naveed et al. (2010), Bayeh (2011), and Solomon (2012).

Size

As per the random effects result presented in table 4.6, the coefficient of size variable was positive and strongly significant at 1% level with p-value of 0.0059, as expected and hypothesized. Thus hypothesis 1d was not to be rejected, implying that there is a significant and positive relationship between size and leverage of insurance companies in Ethiopia. Thus,

insurance firms with larger size were more leveraged than insurance firms with smaller size in Ethiopia under the study period. This indicates that the larger the size of a firm becomes the more debt it will use as a source of finance than equity. This is consistent with trade off theory, in that large firms will have more debt than small firms since larger firms are more diversified and have lower risk of default (Frank and Goyal, 2005). Besides theoretical support, this finding is in line with plenty of previous studies including Woldemikael (2012), Solomon (2012), Usman (2013), Torneyeva (2013), Mohamed and Mahmoud (2013), and Naveed et al. (2010).

Growth Opportunity

Based on plenty of previous theoretical views as well as empirical studies, the researcher predicted and hypothesized growth opportunity variable to have a positive as well as significant relationship with the dependent variable. However, the study result based on random effects estimator as shown in table 4.6, implies that the existence of positive as expected but insignificant relationship of growth opportunity and leverage with a p-value of 0.5. In other word, this indicates that growth opportunity had no any significant influence on capital structure decision of insurance firms in Ethiopia. The positive coefficient of growth opportunity was consistent with pecking theory but not statistically significant. Besides, this finding is consistent with prior empirical findings of Woldemikael (2012) and Usman (2013).

Age

According to hypothesis 1f it was expected that age and leverage of Ethiopian insurance firms to have a positive and significant relationship. In line with the hypothesis, the random effects regression result in table 4.6 showed that the coefficient of age variable was positive and statistically significant at 5% level with p-value of 0.0116. Thus, hypothesis 1f, which holds the

existence of positive and statistically significant relationship between firms‟ age and their leverage in Ethiopian insurance sector was not to be rejected. This finding can be interpreted as; the more firms stay in business, the more likely they become known and mature thus they can easily raise more debt. Similarly speaking, during the study period, older firms in Ethiopian insurance sector utilized more debt as a source of finance than equity as compared to their younger counterparts. This finding is consistent with empirical evidences of Bayeh (2011) and Mohamed and Mahmoud (2013).

4.5.2.2 Macroeconomic Variables

GDP Growth Rate

As per hypothesis 2a, Macroeconomic variable of real GDP growth rate of Ethiopian economy was expected to have a significant and positive relationship with leverage of insurance companies within the country. But, the regression result in table 4.6 based on random effects model, shows that this was not a case in terms of significance. The coefficient of GDP was positive as expected but found statistically insignificant to explain the dependent variable measured as total leverage, with p-value of 0.368. The positive coefficient of GDP growth rate is in support of tradeoff theory which predicts positive relationship between GDP growth rate and firm‟s leverage, but found insignificant. In empirical perspective, this finding is consistent with Mehdi et al. (2012).

Interest Rate

Previously there was a strong expectation by the researcher in that interest rate variable as measured by average lending rate of commercial banks, to have a significant and positive relationship with the dependent variable. However, as it is shown in random effects estimation

result table 4.6, the coefficient of interest rate variable was positive as expected but strongly insignificant, with p-value of 0.7588. So, the hypothesis 2b; stating a significant positive relationship between interest rate of commercial banks and leverage of insurance companies in Ethiopia, was strongly rejected. The positive coefficient of interest rate is in line with tradeoff theory‟s prediction of direct relationship between interest rate and debt level; but, found insignificant. This finding is in line with a study by Mehdi et al. (2012).

Inflation Rate

Random effects regression result in table 4.6, indicates a positive coefficient for inflation rate variable which was 0.1675 and it was also significant at 5% level with p-value of 0.02, to influence financing decision of insurance firms in Ethiopia. This implies that hypothesis 2c (i.e. there is a significant and positive relationship between inflation rate and leverage of insurance firms in Ethiopia) of this study was not to be rejected. Similarly speaking, there is a significant positive relationship between annual inflation rate and debt level of insurance firms in Ethiopian. According to this finding, insurance firms in Ethiopia raised more debt in years of higher inflation rate than in years of lower inflation rate throughout the study period. Interchangeably, the higher the inflation rate in Ethiopia becomes the more likely insurance firms of the country forced to issue more debt than equity in order to finance their operation. This finding is in support of tradeoff theory, which suggests a positive impact of inflation rate on firms‟ leverage, due to the real value of higher tax deductions on debt when inflation is expected to be high. Regarding empirical work, this finding is consistent with previous research by Tesfaye and Minga (2012).

This chapter mainly analyzed and discussed the results of a study including descriptive statistics of dependent and independent variables, correlation between dependent and independent variables, and finally regression analysis and discussion based on random effect estimation model. Besides, model specification test and various diagnostic tests were made in order to make the results robust. The next chapter presents conclusions from results that were analyzed and discussed in this chapter thereby suggest possible recommendations of the study for concerned bodies.

Chapter Five: Conclusions and Recommendations

The preceding chapter analyzed and discussed findings of the study. Consequently, this final chapter of the paper present conclusions in section 5.1 based on results found then suggest possible recommendations for concerned bodies in section 5.2.

5.1 Conclusions

Capital structure decision sometimes referred as financial structure decision is one of among the three key decisions in strategic financial management. Capital structure as represented in this study by leverage measure of total debt ratio; is a composition of debt and equity that a firm uses to make up its assets. Following a stepping stone work of Modigliani and Miller (1958), plenty of theoretical as well as empirical works were conducted in relation with capital structure in general and regarding its determinant factors in particular. However, those theoretical and empirical works were almost contrary to each other. In relation with theoretical works, as per the researcher‟s review; the three of them are strong than others namely; tradeoff theory, pecking order theory, and agency cost theory. More specifically, among the three theories of capital structure; tradeoff and pecking order theories are the two most powerful contenders with a tremendous support of empirical literatures. Consequently, explanatory variables (including their signs) of this study were selected based on tradeoff and pecking order theories as well as the findings from majority of previous empirical studies pertaining to capital structure determinants.

The general objective of this study was to examine firm specific (i.e. profitability, liquidity, business risk, size, growth opportunity, age) and macroeconomic (i.e. GDP growth rate, interest

rate, inflation rate) factors‟ impact on financing decision of insurance firms in Ethiopia thereby to identify prominent theory for insurance sector of the country. In order to achieve such aim, the researcher used quantitative research approach and selecting ten insurance companies purposively as a sample. The nature of data used by this study was a panel data mainly composed of financial statements of sample insurance companies over the period of 2007-2008 and NBE reports over the period of 2007-2013, which was collected through document review method. The researcher regressed firm specific variables of profitability, liquidity, business risk, size, growth opportunity, and age plus macroeconomic variables of GDP growth rate, interest rate, and inflation rate against the dependent variable as measured by total debt ratio. More specifically, the researcher hypothesized significant and negative impact of profitability, liquidity, and business risk on leverage. On the other hand, it was hypothesized that size, growth opportunity, age, GDP growth rate, interest rate, and inflation rate to have significant as well as positive relationship with the dependent variable. In order to examine this relationship thereby to find out significant factors that affect capital structure decision of Ethiopian insurance firms, the researcher employed random effects model of panel estimation with the help of EVIEWS 6 software package. So, based on random effects model estimation, a researcher found out the following relationship of firm specific plus macroeconomic factors on the dependent variable.

- Business risk variable measured with standard deviation of profit before tax divided by mean profit before tax; found to have a positive and statistically significant impact on leverage of Ethiopian insurance firms. This suggests that the more volatile a firm‟s before tax earning is; the more debt it will use as a source of finance in Ethiopian insurance sector. Interchangeably, Ethiopian insurance firms with more volatile

earnings used more debt than equity as compared to Ethiopian insurance firms with less volatile earnings. This finding is consistent with pecking order theory, which predicts a positive relation of business risk with firm leverage.

- Firm size variable as represented by natural logarithm of total assets; was found to have a positive and strongly significant relationship with leverage of Ethiopian insurance firms. In other word, larger insurance firms used more debt than equity as compared to smaller insurance firms in Ethiopia. This finding is consistent with trade off theory, which suggests a positive relationship between firm‟s size and its leverage.

- Age represented with logarithm value of the difference between observation year and establishment year of an insurance firm, found to have a positive and statistically significant impact on debt level of firms in Ethiopian insurance sector. This reflects that under the study period, aged firms were more leveraged than younger firms that operate within insurance sector of Ethiopia. Interchangeably, older Ethiopian insurance firms used more debt than equity in order to fund their operation as compared with their younger counterparts.

- Inflation rate as measured by annual rate of general inflation for Ethiopian economy, found to have a positive and statistically significant relationship with the dependent variable which was represented by total leverage. This implies that throughout the study period, Ethiopian insurance firms borrowed more in the year when inflation rate was high than in the year when inflation rate was low. In an interchangeable manner, a higher inflation rate forced Ethiopian insurance firms to issue more debt than equity. This result is in support to trade off theory of capital structure.

- Surprisingly, the remaining variables of profitability, liquidity, growth opportunity, GDP growth rate, and interest rate were found to have insignificant relationship with the dependent variable. In more specific manner, profitability and liquidity variables were found to have negative but not significant relationship with leverage of insurance firms in Ethiopia. The negative coefficient of profitability is consistent with pecking order theory that postulates an inverse relationship of firm‟s profitability and its leverage, but it is found insignificant. On the other hand, variables of firm‟s growth opportunity, GDP growth rate and interest rate were found to relate positively and insignificantly with debt level of Ethiopian insurance firms. The positive sign attached with coefficients of GDP growth rate and interest rate variables is in line with tradeoff theory, whereas the positive coefficient of growth opportunity is consistent with pecking order theory of capital structure, but they all found as insignificant to affect the dependent variable.

To conclude, based on the regression results; business risk, firm size, age, and inflation rate variables were found to be significant factors that affect capital structure decision (as represented by total leverage) of Ethiopian insurance firms, confirming trade off and pecking order theories as prominent theories for the sector. More specifically, among the two; tradeoff theory is found as the most influential theory for firms than pecking order theory in context of Ethiopian insurance sector.

5.2 Recommendations

As per the study results and conclusions presented in preceding sections, a researcher made the following recommendations.

- Among the explanatory variables that were used for this study; business risk, firm size, firm age, and inflation rate were the significant factors that can influence firms‟ financing decision in Ethiopian insurance sector. Accordingly, managers, shareholders, and potential investors of insurance companies in Ethiopia, are recommended to give closer consideration for such factors in order to gather the fruits of an optimal capital structure. Particularly, management bodies of Ethiopian insurance companies with more volatile before tax earnings should establish and maintain a friendly relationship with their lenders (i.e. commercial banks and other lending institutions) in order to raise more debt. By doing so, they can mitigate problems arise from earning fluctuation such as lacking sufficient internal retained cash flows as well as external share issuance to finance their operation when their earnings fall. Similarly, managers of larger and aged insurance companies in Ethiopia are recommended to strengthen their relationship with lending banks in order to access substantial amount of their debt financing need thereby to achieve an optimal capital mix that maximizes their firm‟s value. Furthermore, when inflation rate in Ethiopia is expected to be high, insurance firms within the country are advised to depend more on debt finance than equity. In doing so, they can benefit from the real value higher tax deductions on debt associated with higher expected inflation rate in the country

- Based on the regression results found, among the major theories of capital structure, trade off and pecking order theories appeared as prominent theories for Ethiopian insurance sector. More specifically, tradeoff theory is found as the most influential theory from the two theories. Therefore, managers of Ethiopian insurance firms are advised to act accordingly by giving due attention first and most importantly for tradeoff theory thereafter for pecking order theory while making their financing decision.

- Based on random effects regression result, it was found that R-squared was 0.3796. This implies that 38% of the variation in leverage is explained by explanatory variables (i.e. profitability, liquidity, business risk, size, growth opportunity, age, GDP growth rate, interest rate, and inflation rate) employed in this study. Thus, the explanatory power of the model used in this study in terms of R-squared is relatively lower as compared to some previous studies; such as Bayeh (2011) and Woldemikael (2012). Based on this finding, as a further research direction, it is recommended for future researchers to incorporate other internal and external factors like dividend payout ratio, non-debt tax shields, asset tangibility, industry median debt ratio, regulatory requirements, and per capita GNP that can affect financing decision of Ethiopian insurance entities. Furthermore, factors affecting working capital management decision and factors affecting investment decision of insurance sector or other sectors in Ethiopia are recommended as promising research areas for future research.

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Appendices

Appendix 1: Correlated Random Effects - Hausman Test

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.997180	5	0.1092

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
PR	-0.198034	-0.235932	0.004256	0.5613
LQ	-0.012149	-0.005319	0.000041	0.2885
SZ	0.030837	0.027758	0.000206	0.8303
GR	0.019069	0.065329	0.000438	0.0271
AG	0.156908	0.129669	0.000444	0.1961

Cross-section random effects test equation:
Dependent Variable: LEV
Method: Panel Least Squares
Date: 05/30/14 Time: 10:27
Sample: 2008 2013
Periods included: 6
Cross-sections included: 10
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.047922	0.366948	-0.130595	0.8967
PR	-0.198034	0.147498	-1.342621	0.1861
LQ	-0.012149	0.009723	-1.249592	0.2179
SZ	0.030837	0.019773	1.559551	0.1259
GR	0.019069	0.055523	0.343450	0.7329
AG	0.156908	0.048569	3.230654	0.0023

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.677527	Mean dependent var	0.686418
Adjusted R-squared	0.577202	S.D. dependent var	0.076321
S.E. of regression	0.049626	Akaike info criterion	-2.956283
Sum squared resid	0.110824	Schwarz criterion	-2.432697

Log likelihood	103.6885	Hannan-Quinn criter.	-2.751479
F-statistic	6.753334	Durbin-Watson stat	1.811634
Prob(F-statistic)	0.000000		

Appendix2:HeteroskedasticityTest-White

Heteroskedasticity Test: White

F-statistic	7.943802	Prob. F(50,9)	0.0012
Obs*R-squared	58.67057	Prob. Chi-Square(50)	0.1875
Scaled explained SS	44.79032	Prob. Chi-Square(50)	0.6819

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/30/14 Time: 10:30
Sample: 2008 2013
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.534049	4.556359	-0.995104	0.3457
PR	-0.396954	2.273350	-0.174612	0.8652
PR^2	-0.417098	0.465453	-0.896114	0.3935
PR*LQ	0.022870	0.027590	0.828910	0.4286
PR*BR	-0.158903	0.160268	-0.991481	0.3474
PR*SZ	0.008245	0.062288	0.132372	0.8976
PR*GR	-0.088911	0.153765	-0.578226	0.5773
PR*AG	0.393228	0.251150	1.565710	0.1519
PR*GDP	-1.795152	4.093495	-0.438538	0.6713
PR*INT	0.896057	6.741012	0.132926	0.8972
PR*INF	0.292819	0.239102	1.224660	0.2518
LQ	0.015087	0.141063	0.106951	0.9172
LQ^2	0.003740	0.001158	3.230106	0.0103
LQ*BR	-0.010227	0.014522	-0.704257	0.4991
LQ*SZ	0.002521	0.005554	0.453946	0.6606
LQ*GR	0.007019	0.006375	1.100974	0.2995
LQ*AG	-0.023316	0.025544	-0.912801	0.3851
LQ*GDP	-0.110008	0.255523	-0.430520	0.6769
LQ*INT	-0.293468	0.383742	-0.764754	0.4640
LQ*INF	-0.018155	0.011006	-1.649619	0.1334
BR	-0.414698	0.378515	-1.095592	0.3017
BR^2	0.042555	0.023179	1.835907	0.0996
BR*SZ	-0.012329	0.019128	-0.644534	0.5353
BR*GR	0.048819	0.023290	2.096168	0.0655
BR*AG	0.134626	0.075519	1.782687	0.1083

BR*GDP	0.900506	0.491345	1.832735	0.1001
BR*INT	3.044182	1.503128	2.025231	0.0735
BR*INF	0.058280	0.025450	2.290018	0.0478
SZ	0.220625	0.290161	0.760354	0.4665
SZ^2	-0.010128	0.008164	-1.240494	0.2462
SZ*GR	0.000247	0.017612	0.014038	0.9891
SZ*AG	0.081402	0.058098	1.401110	0.1947
SZ*GDP	0.088841	0.245910	0.361273	0.7262
SZ*INT	0.681224	0.558630	1.219455	0.2537
SZ*INF	0.026949	0.011869	2.270528	0.0493
GR	0.124000	0.472738	0.262301	0.7990
GR^2	-0.043083	0.043150	-0.998448	0.3441
GR*AG	-0.085796	0.072894	-1.176998	0.2694
GR*GDP	-0.917033	0.829398	-1.105660	0.2976
GR*INT	0.557235	2.211635	0.251956	0.8067
GR*INF	-0.114411	0.050958	-2.245204	0.0514
AG	-1.167232	1.168146	-0.999218	0.3438
AG^2	-0.214499	0.120986	-1.772926	0.1100
AG*GDP	0.553153	0.967605	0.571672	0.5815
AG*INT	-0.630645	2.254462	-0.279732	0.7860
AG*INF	-0.010403	0.056149	-0.185278	0.8571
GDP	43.41079	24.68864	1.758331	0.1126
GDP^2	-55.27531	42.31276	-1.306351	0.2238
GDP*INT	-279.9680	246.6758	-1.134964	0.2857
GDP*INF	-5.087331	2.022696	-2.515124	0.0330
INT	14.41016	28.13283	0.512219	0.6208

R-squared	0.977843	Mean dependent var	0.003392
Adjusted R-squared	0.854748	S.D. dependent var	0.005072
S.E. of regression	0.001933	Akaike info criterion	-9.856457
Sum squared resid	3.36E-05	Schwarz criterion	-8.076264
Log likelihood	346.6937	Hannan-Quinn criter.	-9.160126
F-statistic	7.943802	Durbin-Watson stat	1.943419
Prob(F-statistic)	0.001168		

Appendix 3: Random effects estimation results

Dependent Variable: LEV
Method: Panel EGLS (Cross-section random effects)
Date: 05/28/14 Time: 03:47
Sample: 2008 2013
Periods included: 6
Cross-sections included: 10
Total panel (balanced) observations: 60
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.680813	0.623433	-1.092038	0.2801
PR	-0.153861	0.132295	-1.163016	0.2503
LQ	-0.004216	0.006833	-0.616940	0.5401
BR	0.069785	0.039773	1.754571	0.0855
SZ	0.048968	0.017021	2.876887	0.0059
GR	0.036458	0.053812	0.677515	0.5012
AG	0.113980	0.043512	2.619503	0.0116
GDP	1.024938	1.127429	0.909093	0.3677
INT	0.859176	2.783086	0.308713	0.7588
INF	0.167502	0.071689	2.336503	0.0235

	Effects Specification	
	S.D.	Rho
Cross-section random	0.034281	0.3407
Idiosyncratic random	0.047692	0.6593

	Weighted Statistics		
R-squared	0.379587	Mean dependent var	0.338992
Adjusted R-squared	0.267913	S.D. dependent var	0.059250
S.E. of regression	0.050696	Sum squared resid	0.128502
F-statistic	3.399054	Durbin-Watson stat	1.456308
Prob(F-statistic)	0.002517		

	Unweighted Statistics		
R-squared	0.359300	Mean dependent var	0.686418
Sum squared resid	0.220188	Durbin-Watson stat	0.849905

Appendix 4: Summary of Raw Data

Year	Firm	LEV	PR	LQ	BR	SZ	GR	AG	GDP	INT	INF
2008	AIC	0.7496	0.0346	1.2814	0.434692407	19.327	0.3283	1.146128	0.112	0.115	0.253
2009	AIC	0.7199	0.043	1.438	0.434692407	19.385	0.0591	1.176091	0.1	0.1225	0.364
2010	AIC	0.7375	0.0526	1.5158	0.434692407	19.721	0.3992	1.20412	0.106	0.1225	0.028
2011	AIC	0.7525	0.048	1.109	0.434692407	19.9798	0.2955	1.230449	0.113	0.1188	0.181
2012	AIC	0.7374	0.0480	1.5013	0.434692407	20.1436	0.1779	1.255273	0.088	0.1188	0.341
2013	AIC	0.6898	0.0542	1.202	0.434692407	20.1569	0.0134	1.278754	0.097	0.1188	0.135
2008	AWIC	0.7019	0.0809	1.998	0.802913648	18.933	0.1508	1.146128	0.112	0.115	0.253
2009	AWIC	0.7347	0.0696	1.662	0.802913648	19.116	0.2009	1.176091	0.1	0.1225	0.364
2010	AWIC	0.7039	0.0997	1.697	0.802913648	19.3008	0.2027	1.20412	0.106	0.1225	0.028
2011	AWIC	0.7503	0.0726	1.543	0.802913648	19.708	0.5024	1.230449	0.113	0.1188	0.181
2012	AWIC	0.781	0.0728	1.599	0.802913648	20.058	0.4193	1.255273	0.088	0.1188	0.341
2013	AWIC	0.7503	0.1319	1.7421	0.802913648	20.2841	0.2535	1.278754	0.097	0.1188	0.135
2008	EIC	0.7288	0.0726	2.7975	0.599047154	20.798	0.1305	1.50515	0.112	0.115	0.253
2009	EIC	0.7333	0.0774	2.966	0.599047154	20.91	0.1193	1.518514	0.1	0.1225	0.364
2010	EIC	0.7318	0.0927	3.4288	0.599047154	21.056	0.1563	1.531479	0.106	0.1225	0.028
2011	EIC	0.7558	0.0875	2.238	0.599047154	21.223	0.1817	1.544068	0.113	0.1188	0.181
2012	EIC	0.7783	0.1183	3.133	0.599047154	21.515	0.3397	1.556303	0.088	0.1188	0.341
2013	EIC	0.8556	0.1306	2.4174	0.599047154	21.691	0.1919	1.568202	0.097	0.1188	0.135
2008	GIC	0.5543	0.046	0.8466	1.2127984	17.606	0.2076	1.041393	0.112	0.115	0.253
2009	GIC	0.5767	0.0541	0.9619	1.2127984	17.804	0.2198	1.079181	0.1	0.1225	0.364
2010	GIC	0.589	0.0817	0.835	1.2127984	17.9077	0.1088	1.113943	0.106	0.1225	0.028
2011	GIC	0.5697	0.0368	0.9178	1.2127984	17.985	0.0804	1.146128	0.113	0.1188	0.181
2012	GIC	0.6781	0.0205	0.9146	1.2127984	18.344	0.4316	1.176091	0.088	0.1188	0.341
2013	GIC	0.6465	0.1536	1.1356	1.2127984	18.6348	0.3377	1.20412	0.097	0.1188	0.135

2008	LIC	0.5292	-0.2789	2.9195	1.942409454	16.96	0.3784	0.00	0.112	0.115	0.253
2009	LIC	0.7548	-0.1027	2.1106	1.942409454	17.296	0.3976	1.431364	0.1	0.1225	0.364
2010	LIC	0.4784	0.0743	1.7847	1.942409454	17.827	0.7013	0.477121	0.106	0.1225	0.028
2011	LIC	0.7799	0.0531	1.807	1.942409454	18.182	0.4254	0.60206	0.113	0.1188	0.181
2012	LIC	0.7742	0.1012	1.736	1.942409454	18.604	0.5252	0.69897	0.088	0.1188	0.341
2013	LIC	0.7026	0.1019	1.8348	1.942409454	18.8901	0.3313	0.778151	0.097	0.1188	0.135
2008	NIC	0.6807	0.1034	2.176	0.543553296	18.734	0.386	0.778151	0.112	0.115	0.253
2009	NIC	0.6957	0.0987	1.861	0.543553296	19.147	0.5112	0.845098	0.1	0.1225	0.364
2010	NIC	0.7145	0.0939	1.886	0.543553296	19.4024	0.2909	0.90309	0.106	0.1225	0.028
2011	NIC	0.7082	0.0845	1.853	0.543553296	19.6002	0.2187	0.954243	0.113	0.1188	0.181
2012	NIC	0.7671	0.0885	1.781	0.543553296	19.979	0.4609	1	0.088	0.1188	0.341
2013	NIC	0.7086	0.1099	1.8284	0.543553296	20.1183	0.1492	1.041393	0.097	0.1188	0.135
2008	NICE	0.6662	0.0572	7.0132	1.222238552	17.5967	0.1071	1.146128	0.112	0.115	0.253
2009	NICE	0.6802	0.0462	7.7	1.222238552	17.7498	0.1655	1.176091	0.1	0.1225	0.364
2010	NICE	0.687	0.0588	5.872	1.222238552	17.959	0.2328	1.20412	0.106	0.1225	0.028
2011	NICE	0.7869	0.0026	6.309	1.222238552	18.276	0.3726	1.230449	0.113	0.1188	0.181
2012	NICE	0.7511	0.1743	4.8625	1.222238552	18.7887	0.6701	1.255273	0.088	0.1188	0.341
2013	NICE	0.6919	0.1393	2.7459	1.222238552	19.0956	0.3592	1.278754	0.097	0.1188	0.135
2008	NLIC	0.7331	-0.0144	1.606	0.810806957	19.132	0.0046	1.113943	0.112	0.115	0.253
2009	NLIC	0.7561	0.0197	1.314	0.810806957	19.185	0.0543	1.146128	0.1	0.1225	0.364
2010	NLIC	0.6574	0.1265	2.191	0.810806957	19.3179	0.1421	1.176091	0.106	0.1225	0.028
2011	NLIC	0.6611	0.0902	2.3217	0.810806957	19.487	0.185	1.20412	0.113	0.1188	0.181
2012	NLIC	0.6856	0.0935	2.66	0.810806957	19.799	0.3669	1.230449	0.088	0.1188	0.341
2013	NISCO	0.6054	0.0994	1.0961	0.810806957	19.9607	0.1744	1.255273	0.097	0.1188	0.135
2008	NISCO	0.6261	0.0718	1.6639	0.654132986	18.83	0.1345	1.113943	0.112	0.115	0.253
2009	NISCO	0.5843	0.1593	1.4691	0.654132986	18.9323	0.106	1.146128	0.1	0.1225	0.364

2010	NISCO	0.5611	0.1218	3.479	0.654132986	19.1736	0.2729	1.176091	0.106	0.1225	0.028
2011	NISCO	0.502	0.138	5.088	0.654132986	19.3295	0.1687	1.20412	0.113	0.1188	0.181
2012	NISCO	0.6115	0.2001	2.5647	0.654132986	19.715	0.4162	1.230449	0.088	0.1188	0.341
2013	NISCO	0.6136	0.158	2.261	0.654132986	19.981	0.3046	1.255273	0.097	0.1188	0.135
2008	UNIC	0.639	0.1549	1.868	0.666179504	18.93	0.3349	1.041393	0.112	0.115	0.253
2009	UNIC	0.709	0.0412	1.678	0.666179504	19.103	0.1884	1.079181	0.1	0.1225	0.364
2010	UNIC	0.6567	0.1307	2.0406	0.666179504	19.302	0.2201	1.113943	0.106	0.1225	0.028
2011	UNIC	0.6809	0.0768	2.1511	0.666179504	19.5026	0.2223	1.146128	0.113	0.1188	0.181
2012	UNIC	0.6797	0.1075	2.21	0.666179504	19.823	0.3778	1.176091	0.088	0.1188	0.341
2013	UNIC	0.6586	0.1523	2.1207	0.666179504	20.0128	0.5183	1.20412	0.097	0.1188	0.135

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented in this or any other University and that all sources of materials used for this thesis has been duly acknowledged.

Name: Saddam Mohammedamin Signature _____

Place: Addis Ababa, Ethiopia Date: _____