St. Mary's University

School of Graduate Studies

DETERMINANTS OF CAPITAL STRUCTURE OF INSURANCE COMPANIES IN ETHIOPIA

BY

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SMU

ADDIS ABABA

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A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES OF ST.MARY'S UNIVERSITY IN PARTIALFULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION (ACCOUNTING AND FINANCE CONCENTRATION)

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Master of Business Administration in Accounting and Finance. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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May, 2017

ENDORSEMENT

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

<u>Abebaw Kassie (PhD)</u> _____

Advisor   Signature

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LIST OF ABBREVATIONS AND ACRONYMS

CLRM.	Classical Linear Regression Model
dL	Lower bound
dU	Upper bound
DW	Durbin Watson
GDP	Gross Domestic Product
GLS	Generalized Lease Square
GNP	Gross National Product
GR..	Growth
INF	Inflation
LEV	Leverage
LM	Lagrangian Multiplier
LQ	Liquidity
LSDV	Least Square Dummy Variable
MM	Modigliani and Miller
MoFED	Ministry of Finance and Economic Development
NBE	National Bank of Ethiopia
PR	Profitability
STATA	Statistical Software for Data Analysis
S-W	Shapiro-Wilk
SZ	Size
TNG	Tangibility
WACC	weighted average cost of capital

List of Tables and figures

Abstract

This paper investigates the determinants capital structure of insurance company in Ethiopian by using eleven years data from 2006 to 2016 and the main objective of this study is to examine the determinants of capital structure of insurance companies in Ethiopia. To achieve the objective the study, the researcher used only secondary data obtained from the annual financial statement of nine insurance companies, National Bank of Ethiopia (NBE) and Ministry of Finance and Economic Development (MoFED). In this study, one dependent variable (leverage) and eight independent variables, that is, GDP, inflation, tangibility, liquidity, firm's size, firm's growth, profitability and business risk was employed. Quantitative research approach, explanatory research design, purposive sampling method and classical linear regression model was employed in this study. The balanced panel data was analyzed by using descriptive analysis, correlation analysis, classical linear regression model assumptions and different diagnosis tests and different model estimation tests was employed in this study. The statistical software package (STATA) result of random effect estimates with robust standard error results shows that, inflation, liquidity, firm's size and firm's growth are positive and significant effect on determinant of capital structure. GDP, inflation, liquidity, firm's size, firm's growth and business risk has positive relationship with the dependent variable. But, tangibility and profitability has not positive relationship with leverage. However, the other independent variables like, GDP, tangibility, profitability and business risk had insignificant impact on capital structure. Finally, the study recommends that the from the firm's specific variable liquidity, firm's size and firm's growth are significant and positive relationship to determining optimum capital structure of Ethiopian insurance Companies. So that the manager of insurance company should be highly use such variables effectively to maximize the values of the organization with minimized weighted average cost.

Keywords: Determinants, Ethiopia, Insurance Company, Leverage, Random effect, Robust Standard Error

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Insurance companies are particularly interested in determining the capital structure patterns, because these companies require funds to settle the claims or pay damages at the time of loss. The current business world, without Insurance companies is unsustainable because risky businesses have not a capacity to retain all types of risks that they are faced during the operations Daniel, (2015). Insurance companies are very important to increase economic growth and development Christopher *et al*, (2007). Insurance companies provide the needs of business units and private individuals in financial intermediation. Insurance companies play a key position in financial sector. In developed countries, it accounts for important portion of the economy. By collecting relative premium from a lot of small individuals in the economy, insurance companies are able to pull a large group of funds that could be invested both short and long term periods. It is important for sustained economic growth and it could provide as the means of long term financing. This will in turn generate higher saving rate and therefore better economic development. Since, it provide stability by allowing small and large businesses to operate with a lesser risk of failure, it is critical to the ability of emerging and transition to grow the economies, develop and give a reliable cover for risk to the citizens Taiwo & Olumuyiwa (2014).

Capital structure refers to the way of that a corporation finances its assets through the combinations of equity and debt. That means the firms of capital structure is then the composition or the structure of its liabilities. Equity increased when the organization sells some parts of ownership right to gain funds for investment activities. On the other hand, Debt is a contractual agreement by companies to borrow from external parts of an organization an amount of money and repay it with interest within a determined time border Esmael (2015). The essentiality of capital structure decision is not only the need to Shareholders return maximization, but also essential for the impact of such decision on an organization's ability to deal with its competitive environment Simerly and Li, (2002).

The firm's capital structure decision will affect its competitiveness among its peer. Since, the

capital structure decisions affect profitability directly; care and attention must be given while determining capital structure decision Velnampy & Niresh (2012). Firms can issue a large amount of debt or equity, as it is important to set up the appropriate mix of debt and equity that can maximize its overall market value.

The capital structure issue has been a subject of major concern for researchers and scholars in recent years. Such concern has brought many arguments on the subject which leads to numerous studies on this area. According to Modigliani and Miller (1958), stated that under the perfect market structure, a firm's financial structure would not affect a firm's value and its cost of capitals. However, in 1963, Modigliani and Miller argued that in reality, a firm's value could be increased by changing firm's capital structure, because of tax advantage of debt. Since Modigliani and Miller's study, capital structure has become an issue that attracts a large number of researchers, Forinstant, Naveed *et al.* (2010), Sbeiti (2010), Naser and Krassimir (2011), Bayeh (2011), Najjar and Petrov (2011),   Lim (2012), Solomon (2012), Charles *et al.* (2013), Muhammad *et al.* (2013), Sidra *et al.* (2013), Tornyeva (2013), Kingsley (2013), Mohamed and Mahmoud (2013), Dereje (2014), Albulena *et al.* (2014), Sadam (2014), Mohammed (2014), Daniel (2015), Esmael (2015) and Guruswamy & Adugnaw (2016).

According to in the Ethiopia context, there are few studies have been conducted on the internal and external determinates of capital structure with inconsistence result and this incosistance works have motivated the researcher to probe in to the determinant of capital structure of insurance companies in Ethiopia.

Therefore, the main purpose of this study was to empirically examine the relationship between leverage and internal and external determinants of capital structure decision of insurance companies in Ethiopia.

1.2 Statement of the Problem

The 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, several theories have been developed what factors affect financial structure of a firm and how it can be affected. For instance, Trade-off theory

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also known as Trade-off model of Myers (1984) emphasized that there exists an optimal capital structure for a particular firm by equating the present value of benefits from debt (that is, tax shields) and the present value of costs (that is, financial distress costs) associated with debt financing. According to this theory, the more profitable the firm is the more likely it is to use 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. In addition to this, there is a positive relationship between profitability and leverage. According to Jensen (1986), just like Trade-off Theory, Agency Cost theory emphasizes the existence of positive relationship between profitability and firm leverage. Due to that the benefit, debt justifies problems associated with free cash flows which can lead to use more debt.

Contrary to Trade-off 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) pertaining to Pakistan life insurance sector, Lim (2012) evidence from financial services in China, and Muhammad *et al.* (2013) pertaining to insurance companies of Pakistan.

There are a lot of empirical investigations that revealed capital structure decision is affected by firm specific and macroeconomics variables like tangibility of assets, liquidity, size, growth opportunities, business risk, age, management efficiency, profitability, inflation rate, GDP growth rate exchange rate and etc. But, the result of the previous researcher findings in our country and in other countries has inconsistence results. For instance: **in other countries,** Muthama *et al.* (2013) emphasized external 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. But, the regression results of a study conducted by Mehdi *et al.* (2012) found that macroeconomic variables of GDP, interest rate, inflation, and exchange rate have no any significant impact on corporate capital structure decision in Tehran. And also Sbeiti (2010), Naser and Krassimir (2011), Sidra *et al.* (2013), Cekrezi (2013) founds that tangibility has a significant impact on leverage. But, Thian (2012 found that tangibility has insignificant impact. And also **in our country,**

Bayeh (2011) and Daniel (2015), founds that tangibility and liquidity has statistically a significant impact on leverage. But, Solomon (2012) and Guruswamy & Adugnaw (2016) found that tangibility and liquidity has insignificant impact on leverage.

In the Ethiopian context there are a small number of studies that examined both macroeconomics and firm specific determinants of capital structures of insurance companies in Ethiopia by Saddam (2014) and Guruswamy & Adugnaw (2016). Their findings are varies/lack of consistency. For instance, Sadam (2014) found that a firm's size has significant result. But, Guruswamy & Adugnaw (2016) found that insignificant result. When it comes to the variable GDP, Guruswamy & Adugnaw (2016) found out a significant result. But, Sadam (2014) found that GDP was insignificant result and these inconsistencies result call for undertaking a study on the topic. Furthermore, the existence of inadequate research and inconsistency findings of macroeconomic and firm specific determinants of capital structure of insurance companies in Ethiopia needs further research and analysis.

Therefore, the purpose of this study is to fill the above stated gap by analyzing both macroeconomic and firm specific determinants of capital structure of insurance companies in Ethiopia and providing full information about the relationship between leverage and macroeconomic and firm specific determinants of capital structure decision.

1.3 Objectives of the Study

1.3.1 General Objective of the Study

The general objective of this study is to examine the determinants of capital structure of insurance companies in Ethiopia.

1.3.2 Specific Objectives of the Study

Based on the above general objective, this study intended to achieve the following specific objectives.

1. To determine the effect of GDP on capital structure of insurance companies in Ethiopia,
2. To determine the effect of inflation on capital structure of insurance companies in Ethiopia,

3. To determine the effect of tangibility on capital structure of insurance companies in Ethiopia,

4. To determine the effect of firm's liquidity on capital structure of insurance companies in Ethiopia

5. To determine the effect of firm's size on capital structure of insurance companies in Ethiopia,

6. To determine the effect of firm's growth on capital structure of insurance companies in Ethiopia,

7. To determine the effect of firm's profitability on capital structure of insurance companies in Ethiopia,

8. To determine the effect of business risk on capital structure of insurance companies in Ethiopia,

1.4 Research Hypothesis

Based on the objectives of this study, the following research hypotheses were developed.

➢ H1: There is a significant effect between GDP growth rate of Ethiopian economy and leverage,

➢ H2: There is a significant effect between inflation rate and leverage of insurance companies in Ethiopia,

➢ H3: There is a significant effect between firm's tangibility and leverage of insurance companies in Ethiopia,

➢ H4: There is a significant effect between firm's liquidity and leverage of insurance companies in Ethiopia,

➢ H5: There is a significant effect between firm's size and leverage of insurance companies in Ethiopia,

➢ H6: There is a significant effect between firm's growth and leverage of insurance companies in Ethiopia,

➢ H7: There is a significant effect between firm's profitability and leverage of insurance companies in Ethiopia,

➢ H8: There is a significant effect between business risk and leverage of insurance companies in Ethiopia,

1.5 Significance of the Study

The beneficiary of this study will be insurance companies in Ethiopia. These companies are especially interested in determining the capital structure patterns, because they require funds to settle the claims or pay damages at the time of loss. Making capital structure decision at the optimal level is important for these companies as it greatly helps in operating in a competitive environment. Finally, this study will be used as reference for other researchers who may be interested to conduct their research on macroeconomics and firm specific determinates of capital structure of Insurance companies in general and Ethiopian insurance companies in particular

1.6 Delimitation/Scope of the Study

This study was focused on the macroeconomics and firm specific factors of determinants of capital structure of insurance companies. The study is limited to providing a reliable and most up-to-date result. The study covers eleven years from 2006 to 2016. On the basis of three years of operation of service establishment to get stable capital structure and firms age, nine insurance companies were selected. The companies include: Ethiopian Insurance Corporation, Africa Insurance company S.C, Awash insurance company S.C, National Insurance Company of Ethiopia S.C, Nyala Insurance company S.C, Nile Insurance Company S.C, The United Insurance S.C, Global Insurance Company S.C and NIB insurance company. Insurance companies operating for less than ten years were not included in this study. The study focus on the following explanatory variables: GDP, inflation rate, tangibility of assets, liquidity, size, growth opportunities, profitability and business risk. The reason for selecting those variables was considering the need for the study shows the objective of the study these variables are formed to be worthy to consider and also these variables are used more than twice repeatedly with other researchers. For instance Sbeiti (2010), Bayeh (2011), Naser and Krassimir (2011), Sidra *et al.* (2013), Cekrezi (2013), Dereje (2014), Mohammed (2014), Sadam (2014), Daniel (2015), Guruswamy & Adugnaw (2016).

1.7 Limitations of the Study

Because of the scope of the study lack of adequate research studies regarding on macroeconomic determinants of capital structure of insurance companies in Ethiopian context. Moreover, defining and measurement of variables might not be perfectly representing the conceptual and

theoretical basis. Accordingly, the econometric model, which was the linear regressions of variables, might lead to measurement error and inaccurate inferences.

1.8 Organization of the Study

The study was organized under five chapters focus on the basic principles of applied research and general guidelines of SMU. Chapter one deals with introduction parts which include background of the study, statement of the problem, study objectives, hypothesis, significance, delimitation/scope of the study and ethical consideration. Chapter two presents review of literature which includes a discussion of theoretical as well as empirical works followed by conceptual frame work then ends with conclusion and knowledge gap from the literature. Chapter three discusses data and methodologies used by the researcher to conduct classical linear regression analysis. Chapter four is all about data analysis and discussion of results. Chapter five presents conclusions and recommendations of the study. Finally, the list of bibliography is indicated in the reference section.

1.9 Ethical Consideration

Ethics are norms or standards of behavior guiding moral choices about our behavior and relationships with others, therefore in research; ethical considerations aim to ensure that no individual suffers adverse consequences or harmed Leedy &Ormrod (2013). The basic ethical principles of autonomy, beneficence and justice Marshall & Ross man (2011) were incorporated in this study by means of maintaining confidentiality of information and of respondents.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Overview

Capital structure is attributed to a financial mix of debt and equity that one firm relies on to finance its operations. In other words, 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 2.2 presents various theoretical discussions including trade-off, pecking order, and agency cost theories Modigliani and Miller (MM) propositions, Miller with corporate and personal taxes, Section 2.3 presents the empirical literatures in relation with determinants of capital structure and their implications, section 2.4 presents conceptual fram work. Section 2.5 is about the conclusion and knowledge gap from the reviewed literature.

2.2 Theoretical Review

There are various conditional theories that can explain the behavior of the capital structure of firms. According to Myers (1984), found that there is no universal theory of the debt-equity choice and no reason to expect one. Bauer (2004) states that there are several useful conditional theories, each of which will help one to understand the debt-to-equity ratio structure those firms select. This theory either predicts the existence of the optimal debt-equity ratio for each firm or declares that there are no well-defined target capital structures. The most pronounced theories of capital structure are the static trade-off theory, the pecking-order theory and the signaling theory.

2.2.1 Trade-off Theory

Trade-off Theory which, was developed by Myers (1984), proposes 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. This theory also states 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 bond. 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. Trade-off 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.

In addition, Trade-off 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 can have positive impact on firm's leverage. Generally, the trade-off'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.

Trade-off's theoretical MM 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 they do 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. That is because, as interest rate increases, equity becomes 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 because 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 have negative relationship with leverage. The negative relationship among growth opportunity and leverage expresses that growing firms will lose more of their value when they go into distress due to their debt usage. Finally, as per Trade-off theory the negative relation of business risk and debt level is an indication 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 are likely to use less debt than firms with less volatile cash flows through period Frank and Goyal (2004).

2.2.2   Pecking Order Theory

The pecking order theory by Myers and Majluf (1984), postulates that cost of funding increases alongside asymmetric information. Asymmetric information indicates that managers know about their firm's prospects, values and risks better than outsiders and investors do. 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 order hierarchy and the other at the bottom. In other words, 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 more 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, Trade-off and Agency Cost theories predict that less profitable firms will use more debt finance because they do not have internal funds sufficient for their investment programs and because of this, debt financing comes first on the pecking order of external financing before equity does.

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 dividend, and real investment opportunities. Highly profitable firms with limited investment opportunity work down to low debt ratios. Firms whose investment opportunity exceeds 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 and that 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 forces a firm to increase the amount of debt issuance in order to fill such deficit Frank and Goyal (2003).

2.2.3 Agency Cost Theory

Another important theory of capital structure is agency cost theory which is developed by Jensen and Meckling (1976). This theory emphasizes 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 that cause agency problem and 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 emphasizes 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, 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 to 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).

2.2.4   Modigliani and Miller (MM) without Corporate Taxes

MM without corporate taxes theory which is proposed by financial econometrics Modigliani and Miller (1958) considered as the first modern theory of capital structure. This theory points out that without corporate taxes world there is no possibility for optimal capital structure to exist. In other words, according to this theory, there is no need to worry about capital structure decision issues because, it assumes that a firm's value remains unchanged with and without leverage in the absence of corporate taxes. Thus, according to MM, the value of leveraged firm is similar with the value of unleveraged (an all equity financed) firm. In other word, 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.

Modigliani and Miller (1963) in 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 the increase in leverage. In other 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 emphasize 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 words, 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.

2.2.5 Miller with Corporate and Personal Taxes

Miller (1973), developed his theory of capital structure by incorporating the effect of both corporate and personal taxes. As 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 words, 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 states that in order to achieve such optimal capital structure one firm should use a maximum possible amount of debt as a source of finance.

2.3 Empirical Reviews

In this part of the thesis, the empirical findings from other studies related to elements that affect the firm's specific (internal) and macroeconomics (external) determinants of capital structure are presented.

2.3.1 Internal Factors (firm specific) Determinants of Capital Structure

Sbeiti (2010) investigated the determinants of capital structure: evidence from the Gulf Cooperation Countries (GCC) of Saudi Arabia, Kuwait, and Oman from the period 2007-2011. The result shows 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. The study also shows 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.

Bayeh (2011) investigated capital structure determinants: empirical study on insurance industry in Ethiopia, from the period 2004-2010, took seven factors that is, 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 the study showed that firm's growth opportunity, profitability, age, liquidity and risk have a significant impact on capital structure measured by long term debt and total debt ratios. The results also suggested that liquidity has a significant positive impact on long term debt and debt to equity ratios while business risk appears a significant positive impact on debt to equity and debt ratio. On the hand, growth has 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.

Naser and Krassimir (2011) identified the impact of firm level characteristics on the capital structure of the insurance industry in Bahrain for the period from 2005 to 2009. The study showed that there is a strong correlation between tangibility of assets, profitability, firm size, revenue growth, and liquidity with debt ratio, although Profitability and revenue Growth are not statistically significant and therefore it needs further research.

Solomon (2012) investigated firms' characteristics and capital structure: a panel data analysis from Ethiopian insurance industry from the period 2003-2010, on his study of Ethiopian insurance sector, taking firm specific factors of profitability, size, liquidity, growth, non-debt tax shield, dividend payout, age, size, and tangibility as independent variables and

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regressed them against the dependent variable of leverage. The results of the study implied size, growth, business risk and non-debt tax shield have a significant positive impact on leverage of insurance companies in Ethiopia. On the other hand, the study revealed that profitability, liquidity, tangibility, firm age and dividend payout had no significant relationship with capital structure of firms in Ethiopian insurance sector.

Thian (2012) identified determinants of capital structure empirical evidence from financial services listed firms in China from the period 2005-2009. The study showed that profitability, firm size, non-debt tax shields, earnings volatility and non-circulating shares are significant influence factors in financial sector. Moreover, firm size is positively related to the corporate leverage ratio.

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, size and liquidity of banks in the sample have positive impact on leverage, whereas tangibility, profitability, and growth opportunities have a negative relationship with leverage confirming trade-off, agency cost, and pecking order theories for banking sector of Pakistan.

Kingsley (2013) investigated the determinants of capital structure of insurance companies in Ghana from the period 2002-2007. The results show that both the static trade-off theory and pecking order theories are very important in explaining the capital structure of insurance companies in Ghana. Firm size, profitability and growth were statistically significant in relation to leverage. These are very important variables influencing the financing decisions of insurance companies in Ghana. The other firm level variables were statistically insignificant.

Dereje (2014) investigated determinants of capital structure for unlisted private insurance companies of Ethiopia from the period 200-2011. The researcher used only secondary data obtained from Ethiopian private insurance companies. The researcher found that on average the proportion of debt in the capital mix of Ethiopian private insurance companies is moderate. In the same way the variables like firm liquidity, business risk and non-debt tax shield were found to influence leverage negatively whereas asset tangibility, firm size and profitability have significant positive influence on leverage.

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Mohammed (2014) investigated empirically firm specific factors(internal factors) such as firm leverage, growth opportunities, size, risk, tangibility and liquidity were impacts on capital structure and performance of Ethiopian insurance industry from 2004-2013 by using only secondary data. The results show that firm leverage, Size, tangibility and business risk were significant impact on performance of Ethiopian insurance companies. A significant negative relationship is established between leverage and performance. The result provides strong evidence in support of the pecking order theory of capital structure which asserts that leverage was a significant determinant of firms' performance.

Albulena *et al.* (2014) analyzed the determinants of capital structure among insurance companies in Kosovo using RE model. They retrieved data from 11 insurance companies during the period 2009-2012. The researchers used the debt ratio as a dependent variable whereas company size, growth, life, fixed assets and liquidity ratios were taken as independent variables. The result of RE model shows that these variables are in a positive relationship with the debt ratio. On the other hand company size, fixed assets ratio, liquidity ratio, company life and growth had considerable effects on debt ratio.

Daniel (2015) identified determinants of capital structure (Profitability, asset tangibility, growth, business risk, size of the firm and liquidity) of insurance companies in Ethiopia. The study employed panel regression of eight insurance companies covering the period of ten consecutive years, 2005-2014 using STATA. The results show that pecking order, the static trade-off theory and agency cost theories are very important in explaining the capital structure of insurance companies in Ethiopia, even if the Pecking order theory appears to be dominant. Profitability, tangibility of asset, growth and liquidity were found to be significant in relation to leverage. The study reveals that there is a negative relationship between profitability, liquidity and asset tangibility with leverage. However, growth opportunity of the firm had a positive relationship with debt ratio. The other hypothesized firm level variables, business risk and size of the firm were insignificant.

2.3.2 External (Macroeconomics) Determinants of Capital Structure

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. In other

words, 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) in their study from three Asian countries of Japan, Malaysia, and Pakistan, identified the impact of 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. The result of their study pointed out per capital GNP growth, prime lending rate, financial liberalization, financial markets efficiency, enforcement, and creditors' rights as major macroeconomic or external factors that affect firms' leverage on aggregate in the three countries. More specifically, their study revealed that financial liberalization and efficiency of financial markets had a significant positive relationship with leverage, whereas creditors' rights and enforcement appeared to a significant negative relationship with the dependent variable. Muhammad *et al.* (2009) also found that per capital 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) investigated Macroeconomic development and capital structure decisions of from emerging market economies from the period 1990-2006 evidence from 34 emerging market economies and found bank credit, GDP per capital, inflation, and interest rate 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 capital and capital structure choices, whereas inflation on the other hand found to have positive influence on the choice of short-term debt over equity. 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.

A study result of Sbeiti (2010), in case of three GCC countries shows that external factors 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 implies 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. Also Sbeiti (2010) suggests that interest rate factor was significant in affecting capital structure of firms in Kuwait negatively, whereas it was found to be insignificant in affecting the dependent variable in Saudi Arabia and Oman.

Mehdi *et al.* (2012) investigated the impact of financial managers' perception of macroeconomic variables on capital structure of firms listed in Tehran stock exchange from the period 2010-2011. 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 show 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 significant impact on corporate capital structure according to the results of both questionnaires and regression analysis.

Tesfaye and Minga (2012) made an empirical analysis of macro-economic influences on corporate capital structure of listed companies in Kenya, from the period 1999-2008 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. The result of their study uncovered that size of banking sector, rule of law, and real GDP per capital 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 also observed that stock market development influences long-term debt-ratio positively, while its relationship with short-term debt and total debt ratios was negative and statistically insignificant.

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, 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.

Charles *et al.* (2013) made an empirical analysis of macro-economic influences on corporate capital structure of listed companies in Kenya from the period 1999-2008. An econometric model of multiple linear regressions was used where leverage (debt ratios) regressed against GDP growth rate, inflation rate and interest rate. The study found that GDP growth rate has a positive influence on long term debt ratio and a negative influence on total debt ratio and short term debt ratio. On the other hand, inflation had a negative influence on the short term debts, while interest rates as measured by the Treasury bill have a positive influence on the long term debt ratio and total debt ratio and a negative influence on the short term debt ratio.

Cekrezi (2013), Analyzed the impact of a firm's specific factors and macroeconomic factors on capital structure. The study was conducted on small non-listed firms in Albania from the period 2008-2011. The study revealed that tangibility, profitability, size, risk and NDTSH, GDP growth rate and interest rate have a significant impact on leverage. It also showed found that liquidity has a negative but not a significant relation with leverage.

Muthama *et al.* (2013), conducted an empirical analysis of macro-economic influences on corporate capital structure of listed companies in Kenya, from the period 2004-2008. They found that GDP growth rate has a positive influence on long term debt ratio and a negative influence on total debt ratio and short term debt ratio. Inflation, on the other hand had, a negative influence on the short term debts while interest rates as measured by the treasury bills have a positive influence on the long term debt ratio and total debt ratio and a negative influence on the short term debt ratio. Interest rate has a positive influence on the long term debt ratio and total debt ratio and a negative influence on the short term debt ratio.

Saddam (2014) studied factors affecting capital structure decision: evidence from Ethiopian insurance firms to investigated data structuring from 2007 to 2013. In order to achieve this aim the researcher liquidity, profitability, business risk, growth opportunity, size, age, interest rate, GDP growth 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 Econometric Views (EVIEWS) 6 statistical package software. The results of this study confirmed that business risk, firm size, age, and inflation rate variables were significant factors affecting leverage of insurance firms in Ethiopia positively, confirming Trade-off and pecking order theories as prominent theories for the sector. On the other hand, liquidity, profitability, growth opportunity, interest rate, and GDP growth rate variables are found insignificant to affect the dependent variable. Thus, Ethiopian insurance firms and their managers are advised to pay closer attention to factors such as size, age, business risk, and inflation rate in order to make optimal decision pertaining to capital structure.

Guruswamy & Adugnaw (2016) from the period 2005-2014 identified the determinants of capital structure of selected insurance firms in Ethiopia. The showed found that age, business risk, management efficiency, GDP and inflation has significant and positive relationship with leverage, while firm growth has significant and negative relationship with leverage. However, liquidity, size and tangibility of asset have no significant relationship with leverage of selected insurance companies of Ethiopia.

According to the above empirical literatures, the researcher summarizes the common variables such as, size, growth, tangibility, profitability, liquidity, age, GDP, inflation, interest rate, non-debt tax shield, business risk, earning volatility, management efficiency, asset structure, corporate tax, dividend payout, leverage, GNP, prime lending rate, financial liberalization, efficiency of financial markets, creditor's rights, market capitalization ratio, value traded ratio, turnover ratio and prime lending rate.

2.4 Conceptual Framework

Based on the theoretical and empirical literature reviews, Conceptual framework as depicted in figure 2.1 below, demonstrates a potential link between independent variables with the dependent variables. In other word, it indicates the cause and effect relationship between

selected macroeconomic as well as firm specific factors with capital structure of insurance companies in Ethiopia.

Figure 2.1: Conceptual Framework

Independent Variables   **Dependent Variables**

External (Macroeconomics) Variables
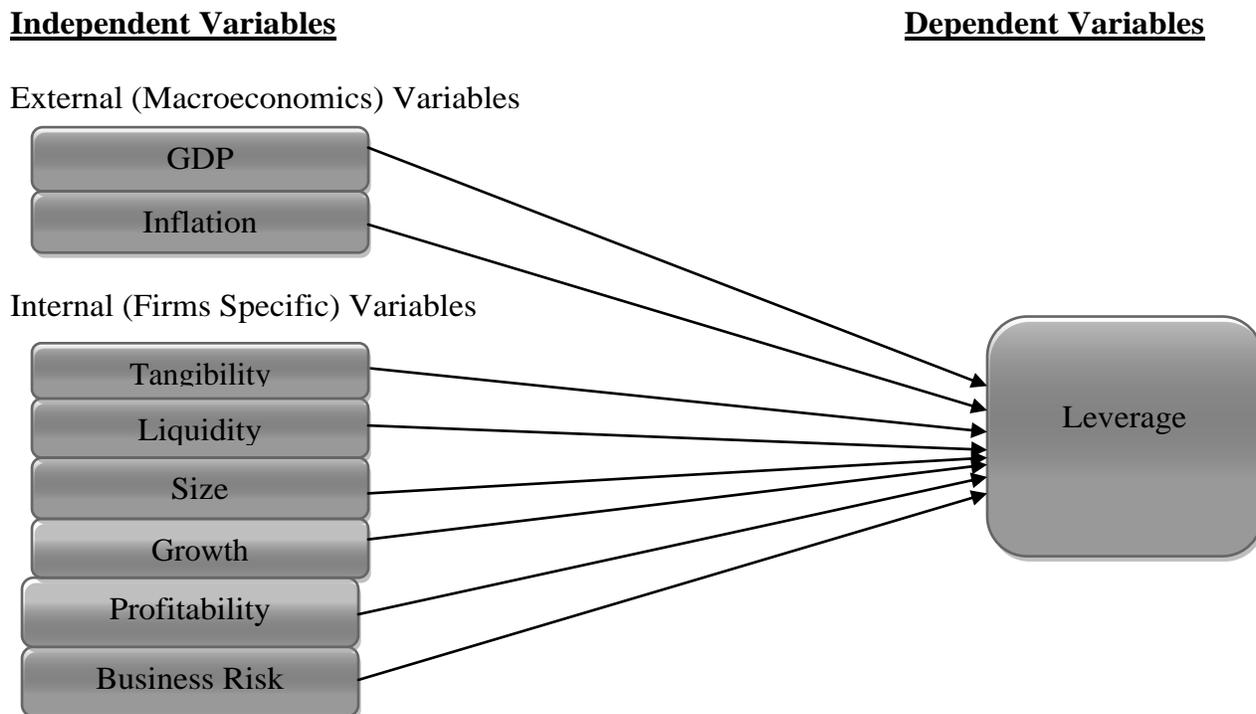
Source: Researcher's own construction based on his literature review and undertaking previous different researchers like Saddam M. (2014) & Daniel (2015).

2.5 Conclusion and Knowledge Gap

As shown above, a review of theoretical and various empirical studies is conducted regarding determinants of capital structure, most of which focus on internal determinants of capital structure. Some researchers mention macroeconomics (external factors) determinants of capital structure. To the best of the researcher's knowledge, there are inadequate study that examined both macroeconomic and firm's specific determinants of capital structures of insurance companies in Ethiopia. Two examples are Saddam (2014) and Guruswamy & Adugnaw (2016). Sadam (2014), in particular found that business risk, size, age and inflation have significant impact while liquidity, profitability, growth opportunity, interest rate, and GDP are insignificant result and Guruswamy & Adugnaw (2016) found that business risk, GDP, age,

management efficiency and inflation have a significant impact while liquidity, size and tangibility of asset have no significant relationship with leverage.

Furthermore, from the empirical literature review, what can be drawn is that, though there are lots of researches conducted by different researchers, the result vary/lacks consistence and these inconsistencies call for undertaking a study on the topic. For instance Sbeiti (2010), Bayeh (2011), Naser and Krassimir (2011), Sidra *et al.* (2013), Dereje (2014), Mohammed (2014), Daniel (2015) and Cekrezi (2013) founds that tangibility has a significant impact. But, Solomon (2012), Thian (2012) and Guruswamy & Adugnaw (2016) found that tangibility has insignificant impact. When it comes to the variable liquidity Sbeiti (2010), Bayeh (2011), Naser and Krassimir (2011), Sidra *et al.* (2013) Albulena *et al.* (2014) and Daniel (2015) found that it makes a significant impact on leverage. But Solomon (2012), Dereje (2014), Mohammed (2014), Saddam (2014) and Guruswamy & Adugnaw (2016) found that liquidity is not statistical significant. And also Bokpin (2009), Mehdi *et al.* (2012), Tesfaye and Minga (2012), Saddam (2014) and Guruswamy & Adugnaw (2016) found that inflation has statistically significant impact. But, Charles *et al.* (2013) and Muthama *et al.* (2013) revealed that it has insignificant impact. And also Bokpin (2009), Charles *et al.* (2013), Cekrezi (2013), Muthama *et al.* (2013), Tesfaye and Minga (2012) and Guruswamy & Adugnaw (2016) founds that GDP has a significant effect. But Mehdi *et al.* (2012) and Saddam (2014) founds that it has an insignificant effect.

Therefore, the purpose of this study was to fill the above stated gap by analyzing both macroeconomic and firm specific determinants of insurance companies in Ethiopia. The period of this study was recent from period 2006-2016 but, the previous researches used data at the back of 2014 years back data and finally, providing full information about the relationship between leverage and macroeconomic and firm specific determinants of capital structure decision the recent data was essential for this study.

CHAPTER THREE

3.Methodology

This chapter has seven major sections. Section 3.1 presents research approach used for the study Section 3.2 is about the research design, section 3.3 focuses on the data type and source, section 3.4 is about study population and sampling technique. Section 3.5 presents method of data collection. Section 3.6 presents description and measurement of variables. Section 3.7 presents method of data analysis and presentation and finally. Section 3.8 discusses model specification issue.

3.1 Research Approach

As described by Creswell (2013), there are three common approaches to conduct a research project in the area of business and social sciences. 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 to its problems, quantitative research approach was used by the researcher for the sake of appropriateness. By using such research approach the researcher was able to establish a cause-effect relationship between the independent and dependent variables of the study.

3.2 Research Design

Research design is the program that guides the researcher's in the process of collecting, analyzing and interpreting the data Creswell (2013). The objectives of this research were to investigate the determinants of capital structure of insurance companies in Ethiopian. Therefore, the explanatory type of research design was found to be suited for this study.

3.3 Data Type and Source

The study uses secondary data only, which are audited financial statements of each company: balance sheet and income statements, annual report of NBE and other relevant statistical. These source of data was collected by soft copy in excel mode (with permission) from National Bank of Ethiopia (NBE) and Ministry of Finance and Economic Development (MoFED). In addition to

the above core data sources, previous related empirical studies, books, and other important documents were referred by to the researcher to make the study robust.

3.4 Method of Data Collection

Document review method was used by the researcher in order to collect all the necessary information to achieve objectives of the study. As a secondary data collection tool for this study, document review mainly focused on reviewing audited financial statements (balance sheet and income statement) of nine insurance companies to obtain necessary figures. Besides, the NBE annual reports and quarterly bulletins as well as other related documents were collected and reviewed by the researcher to get necessary figures regarding macroeconomic (external) variables.

3.5 Study Population and Sampling Technique

As per the current from NBE report (2016), there are seventeen insurance companies were operating in Ethiopia. Among these one was state owned and the remaining are privately owned. Due to the researcher intention to provide the reliable and most up-to-date result, the length of time in this study was eleven years from 2006 to2016. Therefore, the researcher employed purposive sampling techniques. Accordingly, based on age and based on three years of operation of service establishment to get stable capital structure the researcher were selected nine insurance companies in the study.

Table 3.1 A list of Insurance Companies in Ethiopia

No	Name of Insurance Company	Establishing year	No Years until 2016	over the period of 2006-2016 (year)
1	Ethiopian Insurance Corporation	1975	41	11
2	Africa Insurance Company S.C	1/12/1994	22	11
3	Awash Insurance Company S.C	1/10/1994	22	11
4	National Insurance Company of Ethiopia S.C.	23/09/1994	22	11
5	Nile Insurance Company S.C	11/4/1995	21	11
6	Nyala Insurance Company S.C	6/1/1995	21	11
7	Global Insurance Company S.C.	11/1/1997	19	11
8	The United Insurance S.C	1/4/1997	19	11
9	NIB Insurance Company	1/5/2002	14	11
10	Lion Insurance Company S.C	1/7/2007	9	
11	Ethio-Life and General Insurance S.C.	23/10/2008	8	
12	Oromia Insurance Company S.C.	26/01/2009	7	
13	Abay Insurance Company	26/07/2010	6	
14	Berhan Insurance S.C.	24/05/2011	5	unselected insurances
15	Tsehay Insurance S.C.	28/03/2012	4	
16	Lucy Insurance S.C.	1/10/2012	4	
17	Bunna Insurance S.C.	21/05/2013	3	

Source: National Bank of Ethiopia (2016) or http://www.nbe.gov.et/financial/insurer.html

3.6 Description and Measurement of Operational Definition of Variables

3.6.1 Dependent Variable

In this study, Leverage (LEV) was used as a dependent variable. It was commonly interpreted as a measure of capital structure. It was used to explain the amount of debt (leverage) used by a company. The researcher used total debt, consisting of both long-term and short-term liabilities which are the same as total liabilities. Total Assets include current assets and fixed assets, that is, the size of the balance sheet. The consequences of higher debt ratio are that the company might be in a riskier position that was more likely to lead to financial distress, default, bankruptcy, or liquidation.

However, researchers of previous studies choose these leverage ratios as a proxy for capital

structure. Majority of researcher including Najjar and Petrov (2011), Solomon (2012), Woldemikael (2012), Mohamed and Mahmoud (2013), and Tornyeva (2013) employed total debt ratio calculated as total debt divided by total assets to measure leverage of firms. Some other researchers like Bayeh (2011) 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 the majority of previous researchers, including Najjar and Petrov (2011), Solomon (2012), Woldemikael (2012) Mohamed and Mahmoud (2013), and Tornyeva (2013) did, 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:

Leverage Ratio = Total Liabilities/Total Assets

3.6.2 Independent Variables

Based on the reviewed empirical as well as theoretical literatures, the researcher used two external (macroeconomic) variables (that is, GDP and inflation rate) and six internal (firm specific) variables (that is, tangibility, liquidity, firm size, growth opportunity, profitability and business risk). 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 including its measurement and expected relationship with the dependent variable are discussed next.

3.6.2.1 Macroeconomic (External)Variables

GDP Growth Rate

Gross Domestic Product (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 (2005), 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 is represented by annual real gross domestic product of an economy and hypothesized to have a direct impact on leverage.

Hypothesis 1a: *There is a significant and positive relationship between GDP growth rate of Ethiopian economy and leverage of insurance companies in the country.*

Inflation Rate

Inflation rate is 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), 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. This shows that market timing theory suggests positive relationship between inflation and debt if it was expected that future inflation will be more. This expects a direct relation with leverage Farah et al. (2014).

Hypothesis 1b: *There is a positive and significant relationship between Inflation rate and leverage of insurance companies in Ethiopia.*

3.6.2.2 Firm Specific (Internal) Variables

Tangibility of Assets

Tangibility asset is considered as an explicit promise over debt, lenders require tangible assets as collateral. Agency cost theory suggests that collateralized assets can be used as a monitoring instrument to control manager. There exist a positive and significant relationship between tangibility of assets and leverage of insurances company Usman (2014). It is calculated by the following formula

Tangibility= Total Fixed Asset/ Total Asset

Hypothesis 2a: *There is a positive significant relationship between tangibility of assets and leverage of Insurances Companies in Ethiopia.*

Firm's Liquidity

Naser & Krassimir (2011) found a significant negative relationship between liquidity and debt ratio. This negative effect of liquidity on debt indirectly confirm that the Pecking Order Theory. Woldemikael (2012) examined determinants of capital structure of commercial banks in Ethiopia and found that leverage was negative correlated with growth, tangibility, profitability, risk and liquidity of the firm. Therefore, the researcher expects a negative relationship between leverage and liquidity of the firm. It is calculated by the following formula

Liquidity = Total Current Asset/Total Current liability

Hypothesis 2b: There is a negative significant relationship between liquidity and leverage of Insurances Companies in Ethiopia.

Firm's Size

Albulena *et al* (2014) shows that Capital structures of insurance companies are affected by size and suggested that insurance companies should have a high consideration for increase in assets because the size of company is an important factor that has a positive effect on debt to equity ratio. It is calculated by the following formula

Size = Natural Logarithm of total assets

Hypothesis 2c: There is a positive significant relationship between firm's size and leverage of insurance companies in Ethiopia.

Growth Opportunity

The growth factor effects on leverage and how it shall be measured created discrepancies in most literatures. The pecking order theory, Myers and Majluf (1984) argue that firms prefer debt financing for their growth instead of equity due to its riskiness and hence, positive relationship between leverage and growth. However, in static Trade-off theory, growing firms face financial distress and prefer to use equity financing. In addition, agency costs theory Jensen and Meckling (1976) argue firms with greater growth opportunity have more internal sources, which enable them to transfer wealth from debt holders to shareholders and prefer to use internal sources due to the conflicts of interest between shareholders and creditors. These firms investing in assets that may generate high growth opportunities in the future face difficulties in borrowing against such assets. For this reason, a positive relationship is expected between growth and leverage.

Empirical studies of Ahmed *et al.* (2010), Noulas and Genimaks (2011), Kumar *et al.* (2012), and Sharif *et al.* (2012) found a growing firm was financed by more debt. However, the studies of Hassen (2011), Najjar and Petrove (2011), Olayinka (2011), Rajan and Zinglas (1995) and Shah and Khan (2007) showed growing firms are more financed by equity instead of debt. The researcher expects insurance firms with more growth opportunity to be financed by debt; hence, the researcher claims firms with a higher proportion of their market value accounted by growth opportunity will have debt capacity.

It is measured assets growth is used by many scholars in their studies and for the purpose of this research; it is calculated by the following formula.

Assets growth = (Assets of current year - Assets of previous year) /Assets of previous year Therefore, it is expected that there is a positive relationship between growth and leverage.

Hypothesis 2d: There is a significant positive relationship between growth opportunity and leverage of firms in Ethiopian insurance sector.

Profitability

The pecking order theory Myers (1984) argues profitable firms with access to retained profits can rely on them as opposed to depending on outside sources (debt). Myers and Majluf (1984) suggest that firms have a pecking-order in the choice of financing their activities. That is, firms prefer internal funds rather than external funds. If external finance is required, the first option is to issue debt, then possibly with hybrid securities such as convertible bonds, then in time equity as a last resort Brealey and Myers (2003). This behavior possibly due to the costs of issuing new equity, as a result of asymmetric information or transaction costs. On the other hand, Static trade-off theory Myers and Majluf (1984) and Myers (1984) provides contradictory view and argues, profitable firms have greater needs to shield income from corporate tax to increase profit and should borrow more than less profitable firms.

Nonetheless, empirical evidences from financial and non-financial firms Ahmed *et al*.(2010), Gill *et al*. (2009), Najjar and Petrov (2011), Oliyinka (2011), Rajan and Zingales, (1995), Sharif *et al*. (2012), and Teker *et al*.(2009) found profitable firms use less debt financing in line with the pecking order theory. However, other studies Hassen (2011), Kumar *et al*. (2012) and Sayeed (2011) found profitable firms use more debt finance. The researcher expects a negative relationship between profitability and leverage. That is, as supported by pecking order theory, the researcher is concludes that profitable insurance companies use less debt financing. As a proxy for the measure of profitability (Return on Asset), Booth *et al*. (2001), Cassar and Holmes (2003), Adesola (2009), in this study the ratio of operating income to total assets were used. it is calculated by the following formula, Profitability=Net Income/Total Asset

Hypothesis 2e: *There is a significant negative relationship between profitability and insurance firms' leverage in Ethiopia.*

Business Risk

According to the static trade-off theory Myers (1984) argues more risky firms can borrow less compared to less riskier firms. This is because the costs of financial distress offset the tax shields of debt. The more firms are risky, the greater the chance of the firm defaulting and being exposed to such costs. That is, high volatile earning firms face a risk of the earnings level dropping below their debt servicing commitments, thus incurring a higher cost of financial distress. Hence, such firms should reduce their leverage level to avoid the risk of bankruptcy. The pecking order theory also predicts a negative relationship between leverage and earning volatility of a firm's. In this study, the researcher expects risky insurance firms tend to be using less debt financing. As indicated in Han-Suck song (2000), income variability is a measure of business risk. Since higher variability in earnings indicates that the probability of bankruptcy increases, we can expect that firms with higher income variability have lower leverage. This study used the ratio of the standard deviation of net profit before tax divided by average net profit before tax

Hypothesis 2f there is a negative significant relationship between business risk and leverage of insurance companies 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 are summarized in table 3.1 below.

Table 3.2: Summary of independent variables of the study, their measurement, and hypothetic relationship with the dependent variable

Variable's category	Variables	Measurement	Expected impact on leverage
Independent variable	Firm's Leverage	Total liability/Total Asset	
Macroeconomic variables (independent variables)	GDP growth rate (GDP)	Annual GDP growth rate	(+)
	Inflation rate(INF)	Annual inflation rate	(+)
Firm specific variables (Independent variables)	Tangibility of Assets (TNG)	Total Fixed Asset/ Total Assets	(+)
	Liquidity(LQ)	Current assets / current liabilities	(-)
	Firm size(SZ)	Natural Logarithm of total assets	(-)
	Growth opportunity(GR)	Annual percentage change in total assets	(+)
	Profitability(PR)	The Ratio of net income to total asset	(-)
	Business Risk (BR)	Standard deviation of net profit before tax divided by average net profit before tax	(-)

Source: Compiled from review of Literature and Conceptual Framework

3.7 Method of Data Analysis and Interpretation

In this study the balanced panel data of nine insurance companies of Ethiopia which were operating over the last eleven years was used for running the regression equation. After the data was collected, the researcher used statistical software for data analysis (STATA-13) software for analysis purpose. In this study, the researcher employed like descriptive statistics (mean, standard deviation, minimum and maximum), correlation matrix, and classical linear regression models for the purpose of data analysis.

3.8 Model Specification

In order to examine the determinants of capital structure in the case of Ethiopian insurance companies, the classical linear regression model (CLRM) was used. The model is selected due to the nature of data and dependent variable. Furthermore, the nature of data means that, the data

was both cross sectional and time serious data or panel data and the dependent variable was explained in number. So due to this reason the CLRM was appropriate for this study. Therefore, to estimate the relationship between the dependent and explanatory variables, the following model specification is adopted from Brooks (2008).

$$Yit = \beta 0 + \beta Xit + \mu$$

Where:

Yit is dependent variable, $\beta 0$ is the intercept (constant variable), Xit, is independent variable, μ are the error terms i is the number of firms and t is the number of time period.

$$LEVit = \beta 0 + \beta 1GDPit + \beta 2INFit + \beta 3TNGit + \beta 4LQit + \beta 5SZit + \beta 6GRit + \beta 7PRit + \beta 8BRGit + U$$

Where:

LEV = Firm Leverage

$\beta 0$ = Constant coefficient

$\beta 1 - \beta 8$ = Regression coefficients for measuring independent variables

GDP= real GDP growth rate,

INF=Inflation rate,

TNG=Tangibility of asset,

LQ=liquidity,

SZ=size of the firm,

GR=Growth opportunity,

PR=Profitability

BR=Business risk

i = no of insurance companies,

t = time period from 2006-2016,

U = Error term

CHAPTER FOUR

4.1 Data Analysis and Interpretation

This chapter presents the results and analysis of data of selected Insurance Companies in Ethiopia. The chapter is organized into five sections. The first section 4.2 descriptive analysis and result, the second section 4.3 correlation analysis and results, section 4.4 econometric analysis for testing CLRM Diagnostic tests, Section 4.5 model estimation specification tests and section 4.6 regression analyses and discussion of the results, and the results are discussed in depth against each of the hypotheses of this study.

4.2 Descriptive Analysis and Results

In this section, results pertaining to various descriptive measures of total leverage ratio as well as for the macroeconomic and firm specific explanatory variables were discussed. Table 4.1 shows mean, minimum, maximum and standard deviation values of firms leverage, GDP growth rate, inflation, tangibility of assets, liquidity, firm's size, firm's growth, firm's age, profitability and business risk for the sample insurance companies.

4.2.1 Descriptive Statistics Result Interpretation for Dependent Variable (Leverage)

As stated below in table 4.1, it was found that the mean distribution of leverage (total debt divided by total assets) of insurance companies in the sample was 67.7 percent with the standard deviation of 8.4 percent. This means that more than 67 percent of insurance companies in Ethiopia were financed by debts and only 33% of the total asset is financed through equity capital in Ethiopian insurance companies over the period of 2006-2016. The mean debt ratio in UK and the United States is 54% and 58% respectively Rajan & Zingales (1995). Theoretically, it is arguable that firms in developed countries are highly levered compared to those in developing countries. Leverage ratio was found to be high in this study as compared to these results. The reason for this high leverage might be the lack of well-developed stock markets or the market inefficiency in the developing countries. Though primary stock market exists, companies may not raise equity funds by issuing stocks in the market, and the nature of insurance sector is also the prominent reason.

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Table 4.1 *Summary Descriptive Statistics*

```
. xtset CompanyCode YEAR
        panel variable:  CompanyCode (strongly balanced)
         time variable:  YEAR, 2006 to 2016
                 delta:  1 unit


.
. summarize LEV GDP INF TNG LQ SZ GR PR BR
```

Variable	Obs	Mean	Std. Dev.	Min	Max
LEV	99	.677086	.0843922	.4528424	.8267084
GDP	99	.1050806	.0146794	.0773177	.1346072
INF	99	.1326	.1666914	-.2821	.364
TNG	99	.1839115	.1126353	.0386923	.5416532
LQ	99	3.245172	22.31194	.1852017	222.989
SZ	99	19.4171	1.011644	17.22917	21.75521
GR	99	.3313212	1.269274	-.8942996	12.71883
PR	99	.0939696	.0912961	-.0155364	.6452428
BR	99	1.119973	1.488602	.1984	4.5643

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE reports.*

4.2.2 Descriptive Statistics Result Interpretation with the two Independent Variables

As stated in table 4.1, the mean value of GDP was 0.1051. The maximum and the minimum values of economic growth rate were 0.1346 and 0.0773 respectively. The standard deviation of economic growth rate was 0.0147, which shows the existence of lower variation of the value economic growth rate over the last eleven years as compared to the standard deviation of size.

The mean value of inflation rate of assets was 0.1326. The maximum and the minimum values of inflation rate were 0.364 and 0.2821 respectively. The standard deviation of inflation rate was 0.1667 which shows the existence of relatively lower variation of inflation rate over the last eleven years as compared to the standard deviation of size, but it is higher when compared to the standard deviation of GDP and the implication of this results shows that inflation has the higher variation than GDP.

The mean values of tangibility of assets were 0.1839(18.39%). The maximum and the minimum value of tangibility of assets were 0.5417 and 0.0387 respectively. The standard deviation of tangibility of assets was 0.1126(11.28%) of Ethiopian insurance companies. thus, means that 18 percent of Ethiopian insurance companies are fixed asset.

On the other hand, liquidity which is measured as current asset to current liabilities, it has the mean value of 3.2452 which indicate the amount of cash generated from current assets is 3.2452. in other words, the current asset of the Ethiopian insurance companies is 3.2452 times greater than current or short term liability. The liquidity values of sampled Ethiopian insurance companies also varied from minimum 0.1852(18%) to maximum 222.989 which is a very great variation of liquidity. The value of standard deviation is 22.3119, which means it deviates from the mean value of the sampled Ethiopian insurance companies by 22.3119).

The mean value of firm's size of insurance firms under study as measured by natural logarithm of total assets was 19.41 with a standard deviation (dispersion between insurance firms size) of 1.01. The size of sample insurance firms in eleven years period of study ranged from a minimum of 17.22 up to a maximum of 21.75. Furthermore, it was also found that among the whole sample of nine insurance firms, there is no larger insurance firm than the government owned EIC.

The average values or the mean values of firm's growth opportunities of the sampled Ethiopian insurance companies were 0.3313 as measured by annual change of total asset. The maximum value of annual change of total asset among the sampled Ethiopian insurance companies were 12.7188 and minimum change of total asset is -0.8943 (great variation of growth asset among sampled Ethiopian insurance companies). The value of standard deviation of growth is 1.2962, which means a deviation by 1.2692 among of the sampled Ethiopian insurance companies from the mean values.

The average values or the mean value of the firm's profitability of the sample insurance companies was 9.39 percent as measured by return on asset. This indicates that those insurance firms under study earned 9.39 cents of before tax profit on every ETB of their asset investment. Besides, the sample's maximum profitability record was a ROA of 64.2 percent while the minimum appeared with a loss of -1.55 percent per every ETB investment of asset. The

dispersion of ROA for a sample, measured by standard deviation was 9.12 percent. This shows the existence of slow variation in profit among insurance companies in Ethiopia.

Business risk, for the sample insurance companies in the last eleven years varied between maximum of 4.564 up to a minimum of 0.1984. Average risk of doing business for sample insurance companies under study period was 1.1199, whereas the risk dispersion represented by standard deviation was 1.4886.

4.3 Correlation Analysis and Result

According to Brooks 2008, correlation is a statistical measure that indicates the extent of linear relationship between two or more variables that fluctuate together. The correlation coefficients represent the linear relationship between two variables. The correlation coefficient range is between -1 and +1, which is used to measure strength and degree of linear relationship between two variables in the study. A negative correlation coefficient implies the existence of a perfect negative linear relationship between the two variables, where as a positive one indicates a perfect positive linear association and a zero correlation coefficient indicates the absence of any linear relationship between two variables.

4.3.1 Correlation Analysis Result Discussions between Dependent and Independent Variables

As shown in table 4.2, the coefficient of correlation between leverage and GDP was -0.0089, this figure reveals that there is extremely weak negative relationship between leverage and GDP of insurance companies over the last eleven years. The correlation coefficient of leverage and inflation is 0.2072, which is a week and positive relation. The coefficient of correlation between leverage and tangibility was -0.3786, which shows the relationship between leverage and tangibility is weak negative relationship, the coefficient of correlation between leverage and liquidity was 0.1309, which reveals that there is weak positive relationship between leverage and liquidity over the last eleven years. The coefficient of correlation between leverage and firm's size was 0.4445, which shows the relationship between leverage and firm's size is moderate positive correlation over the last eleven years. The coefficient of correlation between leverage and business growth was also 0.1464 which indicates that there is weak positive correlation between them. The coefficient of correlation between leverage and profitability was -0.0722,

which shows that the relationship between leverage and profitability is extremely weak negative relationship. The coefficient of correlation between leverage and business risk was 0.0456, which shows a positive and weak relationship.

4.3.2 Correlation Analysis Results and Discussion Between the two Independent Variables

According to table 4.2, GDP was positively correlated with inflation, tangibility and business risk by having correlation coefficient of 0.3405, 0.0184 and 0.0430 respectively, whereas it was negatively correlated with liquidity, firm's size, growth and profitability having correlation coefficient of -0.0316, -0.3665, -0.0047 and -0.0935 respectively. Inflation was positively correlated with liquidity, profitability and business risk with correlation coefficient of 0.1408, 0.0242 and 0.4218 respectively. But it was negatively correlated with tangibility, firm's size and growth with coefficients of -0.0048, -0.2947 and -0.0501, respectively. Tangibility asset was only positively correlated with business risk with a correlation coefficient of 0.0545, whereas it was negatively correlated with liquidity, firm's size, growth and profitability at a negative coefficient of -0.0676, -0.3068, -0.0248 and -0.0218, respectively. Liquidity was positively correlated with profitability and business risk by having correlation coefficient of 0.4177 and 0.1807, respectively whereas firm's size and growth were negatively correlated with coefficient of -0.0153 and -0.0982, respectively. Firm's size was positively correlated with growth and profitability with correlation coefficient of 0.0037 and 0.0068 respectively whereas it was negatively correlated with only business risk at a coefficient of -0.2901. Growth has no positive correlation, but it has negative correlation with profitability and business risk with a correlation coefficient of -0.0700 and -0.0902, respectively. Profitability has only negative correlation with business risk with a correlation coefficient of -0.0867.

Table 4.2 *correlation Analysis*

```
. correlate LEV GDP INF TNG LQ SZ GR PR BR
(obs=99)
```

	LEV	GDP	INF	TNG	LQ	SZ	GR	PR	BR
LEV	1.0000								
GDP	-0.0089	1.0000							
INF	0.2072	0.3405	1.0000						
TNG	-0.3786	0.0184	-0.0048	1.0000					
LQ	0.1309	-0.0316	0.1408	-0.0676	1.0000				
SZ	0.4445	-0.3665	-0.2947	-0.3068	-0.0153	1.0000			
GR	0.1464	-0.0047	-0.0501	-0.0248	-0.0982	0.0037	1.0000		
PR	-0.0722	-0.0935	0.0242	-0.0218	0.4177	0.0068	-0.0700	1.0000	
BR	0.0456	0.0430	0.4218	0.0545	0.1807	-0.2901	-0.0902	-0.0867	1.0000

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE reports*

4.4 Econometric Analysis for Testing CLRM Diagnostics

The researcher conducted diagnostic tests to guard against the possibility of obtaining and interpreting spurious regression results. The results of the tests are presented in the following sections.

4.4.1 Tests of Normality

There are different interrelated approaches to determine normality: Looking at a histogram with the normal curve superimposed, testing the values of Skewness/Kurtosis, and applying established tests for normality that take into account the Skewness/Kurtosis simultaneously like the Shapiro-Wilk (S-W) test are described and tested below.

4.4.1.1   Histogram Test

A histogram with the normal curve superimposed provides useful graphical representation of the data. The black line superimposed on figure 4.1 histogram represents the bell-shaped "normal" curve of the sample data under study. However, generally all samples deviate somewhat from normal, so the question is how much deviation from the black line indicates "non-normality"? Unfortunately, graphical representations like histogram provide no hard-and-fast rules and it shows normally distributed.
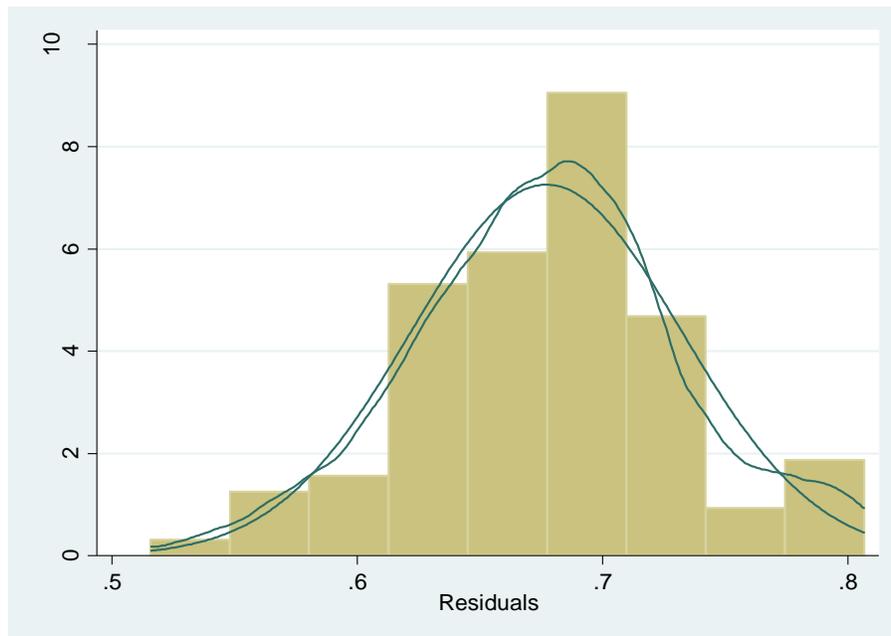
38

Fig 4.1 Histogram

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE report.*

4.4.1.2   Skewness/Kurtosis Tests for Normality

The STATA results for the tests of Skewness/Kurtosis presented in Table 4.3 shows that the researcher failed to reject the null hypothesis as the P-value is quite high both for Skewness (0.2593) and Kurtosis (0.5567) and the joint test (0.4366), which is greater than the level of significance 0.05 and this implied that the data were consistent with a normal distribution assumption.

Table 4.3 *Skewness/Kurtosis tests*

```
. sktest LEV

                    Skewness/Kurtosis tests for Normality
                                                      ——— joint ———
     Variable │    Obs   Pr(Skewness)   Pr(Kurtosis)   adj chi2(2)   Prob>chi2
    ──────────┼─────────────────────────────────────────────────────────────
          LEV │     99       0.2593         0.5567         1.66         0.4366

.
```

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE report.*

Table 4.4 *Skewness/Kurtosis tests for Normality in the residuals*

```
. predict myresiduals, r

. sktest myresiduals
```

```
                    Skewness/Kurtosis tests for Normality
                                                 ——— joint ———
        Variable |  Obs  Pr(Skewness)  Pr(Kurtosis)  adj chi2(2)  Prob>chi2
    ─────────────┼─────────────────────────────────────────────────────────
     myresiduals |   99     0.3396        0.0276        5.57        0.0617
```

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE report.*

According to table 4.4, residual data is not raw data do which regression model parameters of estimations in order to generate residuals. So the p-value of the residual is not very small it is not under the 0.05, so the researcher does not reject the null hypothesis of normality and the researcher can conclude that this regression model shows that it is normally distributed**.**

4.4.1.3   Shapiro-Wilk (S-W) Test for Normality

The Shapiro-Wilk (S-W) test is designed to test normality by comparing the data to a normal distribution with the same mean and standard deviation of the sample. If the test is NOT significant, then the data are normal, so any value above 0.05 indicates normality distributed. Table 4.5 presents the Shapiro-Wilk test which showed that the P-value of the test is 0.223451. This shows that there is no strong evidence to reject the null hypothesis that the distribution is normal at a level of significance of 0.05. The S-W test also implied that the data were consistent with a normal distribution assumption.

Table 4.5 *Shapiro-Wilk (S-W) Test*

```
. swilk LEV
```

```
                    Shapiro-Wilk W test for normal data

        Variable |   Obs      W        V       z      Prob>z
    ─────────────┼──────────────────────────────────────────
             LEV |    99    0.98307   1.386   0.724   0.23451
```

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE report.*

4.4.2 Heteroscedasticity Test

The key classical assumption of regression is that the variance of the error is constant across the observations. If the errors have constant variance, the errors are called homoscedastic and there is no heteroscedasticity. The result in table 4.6 shows the insignificance (P-value is 0.5036) and the researcher accepts the null hypothesis of constant variance which means there is no heteroscedasticity detection. So Breusch-Pagan tests suggest that the researcher's data is free of heteroscedasticity.

Table 4.6 Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

```
. estat hettest GDP INF TNG LQ SZ GR PR BR

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: GDP INF TNG LQ SZ GR PR BR

        chi2(8)      =     7.31
        Prob > chi2  =   0.5036
```

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE report.*

4.4.3   Multicollinearity Test

Multicollinearity is the statistical problem that is addressed among the independent variables. That means multicollinearity exists when the independent variables are highly correlated. According to Gujarati (2003), if the variance-inflating factor (VIF) >10 and the R^2 >0.9, it shows that, there is high multicollinearity detection. VIF measures how much the variances of the estimated regression coefficients are inflated as compared to when the determinants are non-linearly related. As it is shown in table 4.7, the VIF value was 1.29 and according to table 4.11 the R^2 value is 0.2895 which shows that there is no multicollinearity detection problem.

Table 4.7 *Multicollinearity Test result*

```
. vif
```

Variable	VIF	1/VIF
SZ	1.43	0.698013
INF	1.43	0.701346
BR	1.40	0.716029
GDP	1.32	0.758994
LQ	1.30	0.767965
PR	1.28	0.783031
TNG	1.13	0.884423
GR	1.02	0.980652
Mean VIF	1.29	

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE report.*

4.4.4 Autocorrelation Test

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 (that is, 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.

Table 4.8 *Autocorrelation test result*

```
. gen time=_n

. tsset time
        time variable:  time, 1 to 99
               delta:  1 unit

. regress LEV GDP INF TNG LQ SZ GR PR BR
```

Source	SS	df	MS		Number of obs =	99
					F(8, 90) =	8.30
Model	.296252305	8	.037031538		Prob > F =	0.0000
Residual	.401707154	90	.004463413		R-squared =	0.4245
					Adj R-squared =	0.3733
Total	.697959459	98	.007122035		Root MSE =	.06681

LEV	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GDP	.4113992	.5277072	0.78	0.438	-.6369832	1.459782
INF	.152507	.0483439	3.15	0.002	.0564635	.2485505
TNG	-.1597887	.0637112	-2.51	0.014	-.2863621	-.0332153
LQ	.0005392	.0003452	1.56	0.122	-.0001465	.0012249
SZ	.0427274	.0079847	5.35	0.000	.0268644	.0585905
GR	.0109609	.0053692	2.04	0.044	.0002941	.0216277
PR	-.1148852	.083537	-1.38	0.172	-.280846	.0510756
BR	.0030608	.0053577	0.57	0.569	-.0075832	.0137047
_cons	-.1846361	.1880806	-0.98	0.329	-.558291	.1890189

```
. dwstat

Durbin-Watson d-statistic(  9,   99) =  .5273648
```

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE report.*

The DW stat value from the random effect regression output of this study as presented in table 4.8 was 0.527. From DW table, critical values of dL and dU for 9 regresses and 99 observations at 1% significance level, was 1.5026 and 1.8501 respectively. Thus, the DW stat of 0.527 was not between dL and dU. The result was against the null hypothesis (no serial correlation). So the data has autocorrelation detection problem. Accordingly, robust standard error estimation in random effect model was used by the researcher to tackle the autocorrelation problem of the random effect estimates. Therefore, the autocorrelation detection problem was fixed in Table 4.11 by robust standard error.

4.5 Model Estimation Specification Test

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 models. For panel data, the study conducted regression models and applied different tests like the Hausman test and Breusch and Pagan Lagrangian Multiplier tests to find out the appropriate model to estimate Fixed Effects estimation model regression, random Effects GLS (Generalized Lease Square) estimation model or Pooled OLS estimation model.

Table 4.9 *Hausman test result*

```
. estimates store random

. hausman fixed .

                    ──── Coefficients ────
                  (b)          (B)          (b-B)      sqrt(diag(V_b-V_B))
                 fixed        random       Difference          S.E.

        GDP     .2649595     .3137629     -.0488035          .0963755
        INF     .1560311      .156757     -.0007258          .0040295
        TNG    -.0166553    -.0302717      .0136164          .0122096
         LQ     .0002336     .0002564     -.0000229          .0000424
         SZ     .0379481      .040063     -.0021149          .0041853
         GR     .0064825     .0067652     -.0002827          .0005012
         PR    -.0796852    -.0855968      .0059115          .0125645
         BR     .0020947     .0024413     -.0003466          .0007102

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

    Test:  Ho:  difference in coefficients not systematic

             chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                     =        2.29
          Prob>chi2 =      0.9709
```

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE report.*

According to table 4.9, the null hypothesis was random effect estimation model appropriate and the alternative hypothesis is fixed effect estimation model is appropriate and the probability is 0.9709 or 97% which was more than 5% this means that the researcher cannot reject the null hypothesis but, rather accept it, that is random effect estimation model was appropriate and the researcher can double check whether this random effect estimation model was appropriate or not. So the researcher wants to check whether random or pooled regression estimation model is better. This was cross-checked with Breusch and pagan LM test to double check further.

Table 4.10 *Breusch and pagan LM test*

```
. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

        LEV[CompanyCode,t] = Xb + u[CompanyCode] + e[CompanyCode,t]

        Estimated results:
                              Var       sd = sqrt(Var)
                    ─────────────────────────────────────
                LEV │    .007122        .0843922
                  e │    .0020716       .0455153
                  u │    .0032279       .0568142

        Test:   Var(u) = 0
                        chibar2(01) =    111.11
                      Prob > chibar2 =   0.0000
```

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE report.*

According to table 4.10, for the null hypothesis is pooled regression estimation model is appropriate and the alternative hypothesis is random effect estimation model is appropriate and the probability value is almost zero which is below 5% which means that, the researcher can reject the null hypothesis and accept the alternative hypothesis: random effect model as appropriate. Both Hausman test and Breusch and pagan LM test state that random effect estimation model is the best model to represent data. Because the coefficients are not zero and the probability value is less than 5% and random effect model is as shown in table 4.11. So, the regression analysis and discussion of the results in the next sections of this paper were made based on the random effects model of panel estimation. And the main difference of fixed effect and random effect estimation models was fixed effect has dummy variables rather random effect omits dummy variables.

4.6 Regression Analysis and Discussion of the Results

This section presents, the regression analysis which was followed by discussion of results obtained from the analysis based on random effects model of panel estimation. Thus, the next two sub-sections, that is, 4.6.1 and 4.6.2, deal with regression analysis and discussion of results from which conclusion to be made about the determinants of capital structure decision as represented by leverage of Ethiopian insurance industries.

4.6.1 Results of Regression Analysis

The previous section of this thesis revealed that the descriptive statistics, correlation result and various techniques diagnosis tests of the validity of the data and the appropriateness of the right estimation model. This helped the researcher to employ multiple regressions to predict the magnitude of each explanatory variables impact on the dependent variable (leverage). As shown in the previous section of the paper, the model used to find out and explain the association between the dependent variable and the independent variables which was macroeconomic and specific variable was:

$$Yit = \beta0 + \beta Xit + \mu$$

Where:

Yit is dependent variable, β0 is the intercept (constant variable), Xit, is independent variable, μ are the error terms i is the number of firms and t is the number of time period.

$$LEVit = \beta0 + \beta1GDPit + \beta2INFit + \beta3TNGit + \beta4LQit + \beta5SZit + \beta6GRit + \beta8PRit + \beta8BRit + U$$

Where:

LEV = Firm Leverage

β0 = Constant coefficient

β1 – β8 = Regression coefficients for measuring independent variables

GDP= real GDP growth rate,

INF=Inflation rate,

TNG=Tangibility of asset,

LQ=liquidity,

SZ=size of the firm,

GR=Growth opportunity,

PR=Profitability

BR=Business risk

i = no of insurance companies,

t = time period from 2006-2016, U = Error term.

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 and Breusch and pagan LM test

which is correlated to random effects model and the results are shown in previous section on table 4.9 and 4.10, the result suggests that random effects estimation model is appropriate and preferable to the fixed effects one. So, the regression analysis as well as discussion of results regarding determinants that influence capital structure decision of insurance firms in Ethiopia was made based on the random effects estimation results.

4.6.1.1 Robust Standard Error in Random Effect Model

The statistical software package (STATA) result of random effect estimates with robust standard error is presented in Table 4.11. This result was used for the analysis and discussion of result for this study research hypothesis testing.

Table 4.11 Random Effect Estimates with Robust Standard Error

```
. xtreg LEV GDP INF TNG LQ SZ GR PR BR, re robus

Random-effects GLS regression                   Number of obs      =        99
Group variable: Insurance1                      Number of groups   =         9

R-sq:  within  = 0.2895                          Obs per group: min =        11
       between = 0.4605                                         avg =      11.0
       overall = 0.3921                                         max =        11

                                                 Wald chi2(8)       =   5784.03
corr(u_i, X)   = 0 (assumed)                     Prob > chi2        =    0.0000

                                  (Std. Err. adjusted for 9 clusters in Insurance1)
```

| | | Robust | | | | |
LEV	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
GDP	.3137629	.224858	1.40	0.163	-.1269505	.7544764
INF	.156757	.0421811	3.72	0.000	.0740835	.2394305
TNG	-.0302717	.083107	-0.36	0.716	-.1931584	.132615
LQ	.0002564	.0001163	2.21	0.027	.0000285	.0004843
SZ	.040063	.0062696	6.39	0.000	.0277748	.0523511
GR	.0067652	.0006387	10.59	0.000	.0055133	.008017
PR	-.0855968	.0595576	-1.44	0.151	-.2023276	.031134
BR	.0024413	.0039075	0.62	0.532	-.0052172	.0100998
_cons	-.1467744	.1244396	-1.18	0.238	-.3906715	.0971228

sigma_u	.05681422
sigma_e	.04551531
rho	.60908693	(fraction of variance due to u_i)

Source: *Researcher's own computation through STATA13 based on financial statements of insurance companies and NBE report.*

The random effect model with robust standard error presented in table 4.11 shows that tangibility of asset and profitability has negative relation with the debt ratio (leverage). The other six explanatory variables, GDP, inflation, liquidity, firm's size, firm's growth and business risk have positive association with leverage.

Table 4.11 indicates that inflation was strongly statistically significant (P-value= 0.000) at 5% level of significance. In addition, liquidity was significant (P-value=0.027) at 5% level, firm's size and firm's growth as strongly significant (P-value=0.000& P-value=0.000 respectively) at 1% level

The STATA produced three R-squared results. **R-sq within:** The R-squared from the mean-deviated regression, that is, the ordinary r-squared from running OLS on the transformed data. The within R-squared was the variability explained by the explanatory variables after taken out the random effects. **R-Sq between:** first, it computes the fitted values using the random-effects parameter vector and the within-individual means of the independent variables. Then calculates the r-squared as the squared correlation between those predicted values and the within-individual means of the original y variable. **R-sq overall:** first means that computes the fitted values using the random-effects parameter vector and the original, untransformed independent variables. Then calculates the r-squared as the squared correlation between those predicted values and the original, untransformed y variable Daniel (2015).

Since the previous sections, noted that random effect with robust standard error model was selected. In the above table 4.11 R-sq within was used to explain 0.2898(28.95%) explanatory variables (GDP, inflation, tangibility of asset, liquidity, firm's size, growth, profitability, and business risk)

4.6.2 Discussion of Results

The previous sub-section shows that highlighted the regression analysis results based on random effects estimation. The preceding sections presented the overall results of the findings pertaining to macroeconomic and firm specific determinants for capital structure of insurance firms in Ethiopia presented. Moreover, this section analyzed the statistical findings of the study against the ones suggested by the theoretical literatures and the ones found in other empirical studies.

4.6.2.1 Macroeconomic Variables

GDP and Leverage

Hypothesis 1a: *There is a significant and positive relationship between GDP growth rate of Ethiopian economy and leverage of insurance companies in the country.*

Based on the hypothesis 1a, Macroeconomic variable of 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 4.11 shows that the coefficient of GDP was positive as expected but found statistically insignificant to explain the dependent variable measured as leverage, with p-value of 0.163. The positive coefficient of GDP growth rate is support of Trade-off 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) and Saddam (2014). Finally, the implication of this result shows that GDP has positive association ship with leverage (dependent variable). But, it was insignificant result, meaning that GDP cannot explain or support the dependent variable (leverage).

Inflation and Leverage

Hypothesis 1b: *There is a positive and significant relationship between Inflation rate and leverage of insurance companies in Ethiopia.*

Based on the hypothesis 1b, Macroeconomic variable of inflation was expected to have a significant and positive relationship with leverage. So in the above table 4.11, shows that the random effects regression result indicates a positive beta coefficient for inflation rate variable which was 0.01568 and it was also strongly significant at 5% level with p-value of 0.00, to influence financing decision of insurance firms in Ethiopia. This implies that the hypothesis 1b (that is, 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. In the other word, 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 Trade-off theory, which suggests a positive impact of inflation rate on firms leverage. Regarding empirical work, this finding is consistent with previous research by

Bokpin (2009), Mehdi *et al.* (2012), Tesfaye and Minga (2012) and Guruswamy & Adugnaw (2016) and also, the positive relationship of inflation growth rate and the leverage level of the Ethiopian insurance industry are in line with Trade off theory. Finally, the implication of this result shows that inflation has positive association ship and significant with leverage, meaning that, holding other factors are constant, if inflation rate increases by one unit %, leverage will increase by 15.68%. Therefore, inflation was the positive and significant effect to explain the dependent variable (leverage).

4.6.2.2   Firm Specific Variables

Tangibility of asset and leverage

Hypothesis 2a: There is a positive significant relationship between tangibility of assets and leverage of Insurance cCompanies in Ethiopia.

The researcher expects based on the above hypothesis, but the results of random effect with robust standard error model in table 4.11 indicated that tangibility had a negative relationship with leverage and the relationship was insignificant (P-value = 0.716) at 5%. The result of the study rejected the null hypothesis and the result shows that tangibility does not explained the independent variables in this regression result. A negative relationship between tangibility and leverage in this study was in conformance with agency cost theory. According to agency cost theory, there is a conflict between lenders and shareholders due to the possibility of moral hazard on the part of borrowers. This conflict creates incentives for shareholders to invest in a sub-optimal way and lenders require tangible assets as collateral to protect them. The agency cost of debt increase when firms cannot collateralize their debt. Outsized proportion of a firm's assets can be used as collateral to fulfill lenders requirements. This finding was consistent with researchers Solomon (2012), Thian (2012) and Guruswamy & Adugnaw (2016). Finally, the implication of this result shows that tangibility has negative association ship with leverage (dependent variable) and insignificant result, meaning that tangibility of asset cannot explain or support the dependent variable (leverage) for this study.

Firm's Liquidity and Leverage

Hypothesis 2b: There is a negative significant relationship between liquidity and leverage of Insurances Company in Ethiopia.

Liquidity was the firm specific of another independent variable employed in the study. From the table 4.11, it has a positive beta coefficient of 0.0025 and p-value of 0.027. This indicates that liquidity is influence the dependent variable and it has a significant variable. Therefore, the null hypothesis which stated that liquidity has negative significant impact on leverage was possible to reject in the study by the researcher. This finding was consistent with researchers Sbeiti (2010), Bayeh (2011), Naser and Krassimir (2011), Sidra *et al.* (2013), Albulena *et al.* (2014) and Daniel (2015) and also, the positive relationship of liquidity ratio and the leverage level of the Ethiopian insurance industry are in line with Trade off theory. Finally, the implication of this result shows that it indicates that the firm can easily pay its obligations and hence face a lower risk of default. Therefore, liquidity was has a power to explain the dependent variable (leverage).

Firm's Size and Leverage

Hypothesis 2c: There is a positive significant relationship between firm's size and leverage of insurance companies in Ethiopia.

Firm's size was another independent variable employed in the study. From the above table 4.11, it has a positive beta coefficient of 0.400 and p-value of 0.000. This indicates that firm's size is strongly influence the dependent variable and it has highly significant variable. Therefore, the null hypothesis which stated that firm's size has positive significant impact on leverage was possible to accept the null hypothesis in the study by the researcher. And also this finding was consistent with researchers Sbeiti (2010), Naser and Krassimir (2011), Solomon (2012), Thian (2012), Sidra *et al.* (2013), Kingsley (2013), Dereje (2014), Mohammed (2014), Albulena *et al.* (2014), Cekrezi (2013), Tesfaye and Minga (2012) and Saddam (2014). Finally, the implication of this result shows that firm's size has positive association ship and significant with leverage, meaning that, firm's size was goes up, also leverage goes up and firm's size goes down, also leverage goes down. Therefore, firm's size was the positive and significant effect to explain the dependent variable (leverage).

Firm's Growth and leverage

Hypothesis 2d: There is a significant positive relationship between growth opportunity and leverage of firms in Ethiopian insurance sector

The researcher expectation is mentioned the above hypothesis 2d, and the random effect regression result is shown in table 4.11, the firm's growth has strongly significant (P-value =

0.000) and a positive (beta coefficient = 0.040) impact on the decision of insurance companies capital structure. Accordingly, the null hypothesis was rejected and the alternative hypothesis i,e, 2d was accepted.

The finding was a positive association-ship between growth and leverage could be that growing insurance firms should rely more and more on external borrowing to seize market opportunities. This finding argument is supported by the pecking order theory, which argues firms prefer debt financing for their growth instead of equity due to its riskiness. The possible reason for this result could be growing insurance companies can expand their branches to reach to additional customers (expand market share), which enables them to borrow more debt. This finding was consistent with researchers, Bayeh (2011), Sidra *et al.* (2013), Daniel (2015), Kingsley (2013), Albulena *et al.* (2014) and Solomon (2012) and also it is consistence with Trade off theory. Finally, the implication of this result shows that firm's growth has positive association ship and significant with leverage, meaning that, firm's growth was goes up, also leverage goes up and firm's growth goes down, also leverage goes down. Therefore, firm's growth was the positive and significant effect to explain the dependent variable (leverage).

Profitability and Leverage

Hypothesis 2e: *There is a significant negative relationship between profitability and leverage of insurance companies in Ethiopia*

The results of random effect with robust standard error model in table 4.11 indicated that profitability had a negative relationship with leverage, and is not significant (p-value = 0.151) at 1%. Thus, the null hypothesis is not rejected rather than the researcher accept the null hypothesis of 2e, The result of this study is consistent with the pecking order theory that argues profitable firms with access to retained profits can rely on them as opposed to depending on outside sources (debt).Moreover, the negative association between profitability and leverage and profitability has insignificant variable or does not influence the independent variable. However, as per the result of this study is in line with pecking order theory and agency theory. It is also support the findings of Naser and Krassimir (2011), Solomon (2012) and Saddam (2014). Finally, the implication of this result shows that profitability has negative association ship with leverage (dependent variable) and insignificant result, meaning that profitability goes up, also leverage goes down or inverse relationship. So, profitability cannot affect or explain the dependent variable (leverage).

Business Risk and Leverage

Hypothesis 2f there *is a negative significant relationship between business risk and leverage of insurance companies in Ethiopia*

The last variable of the firm specific was business risk variable and the result of this study presented in table 4.11 indicated that business risk was insignificant (P-value=0.532) determinant of capital structure of insurance companies in Ethiopia at 5%. Hence there was strong evidence to reject the null hypothesis (2f). That was accordingly, the claim in the alternative hypothesis there was significant relationship between leverage and business risk was not supported. This result was contradicted with the studies of Solomon (2012), Mohammed (2014), Cekrezi (2013) Saddam (2014) and Guruswamy & Adugnaw (2016), however, the researcher prior hypothesis of negative association between leverage and business risk was supported by the findings of this study. This was in line with the argument of trade-off theory which suggests that less risky insurance firm can take more debt as its ability to pay the interest payments on time or without any delay was reliable. That was, high volatile earning firms face a risk of the earnings level dropping below their debt servicing commitments, thereby incurring a higher cost of financial distress. Hence, such firms should reduce their leverage level to avoid the risk of bankruptcy. The result is also in line with the pecking order theory, which predicts a negative relationship between leverage and earning volatility of a firm's. Therefore, the results obtained in this study showed that there exists no significant relationship between business risk and leverage ratio. The insignificant result indicates that risk is not considered as a proper explanatory variable of leverage in the Ethiopian insurance sector. It is also support the findings of Kingsley (2013), Dereje (2014) and Daniel (2015). Finally, the implication of this result shows that business risk has positive association ship and insignificant with leverage, meaning that, business risk was goes up, also leverage goes down and business growth goes down, also leverage goes down. Therefore, business risk does not explain the dependent variable (leverage) for this study.

CHAPTER FIVE

4. Conclusion and Recommendations

This is the last chapter of the paper and it comprehensively summarizes the whole chapters of this paper. The first part presents the conclusion of the study by summarizing the major findings. The last part forwards some recommendations that are thought to be practical and feasible.

5.1 Conclusion

The random effect regression result with robust standard error model shows that from the macroeconomics determinant factors inflation was the most dominant and strongly positive relationship and significant result and also from the firm's specific variables liquidity, firm's size and firm's growth has positive relationship and significant variables. GDP, inflation, liquidity, firm's size, firm's growth and business risk have positive relationship with the dependent variable. But, tangibility and profitability have not positive relationship with leverage.

The researcher employed random effects model of panel estimation with the help of STATA 13 software package. So, results of random effect with robust standard error model shows that, the following macroeconomic and firm specific significant effect and positive relationship variables are influencing and explaining the dependent variable.

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

➢ Firm's 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 words, 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.

- ➢ Liquidity was found to have positive relationship and statistically significant effect on leverage. Positive sign of liquidity is in agreement with the trade-off theory and ability to meet short term obligations. This leads to the attraction of potential investors since high asset liquidity ratio can be considered by institutional investors to be a positive signal and finally, it indicates that the firm can easily pay its obligations and hence face a lower risk of default.

- ➢ The finding was an indication of a positive relationship between growth and leverage could be that growing insurance firms should rely more and more on external borrowing to size market opportunities. This argument of the finding is supported by the Pecking Order Theory, which argues firms prefer debt financing for their growth instead of equity due to its riskiness. The possible reason for this result could be growing insurance companies can expand their branches to reach additional customers (expand market share), which enables them to borrow more debt

Therefore, the researcher concluded that, the macroeconomic and firm specific determinant variables of capital structure of insurance companies of Ethiopia are inflation, liquidity, firm's size and firm's growth in order of their degree of influence since they have statistical significant. But the other GDP, tangibility, profitability and business risk have insignificant effect on capital structure.

Finally, the study showed that inflation, liquidity, firm's size and firm's growth are significant effect and positive relationship with leverage of selected insurance companies in Ethiopian. The findings of the study also indicate that, Trade-off Theory and Pecking Order Theory are important capital structure theories in the sample insurance companies in Ethiopia.

5.2 Recommendation

Based on the major findings of the study, the researcher makes the following three recommendations:

- ➢ Among of eight independent variables, from the firm's specific variable liquidity, firm's size and firm's growth are a significant effect and positive relationship variable of determining optimum capital structure of Ethiopian insurance Companies. Therefore, Insurance companies should pay greater attention to these significant variables in determining their optimal capital structure to maximize weighted average cost.

5.3 Suggestions for Further Research

Based on the random effect regression result with robust standard error model, it was found that R-squared was 0.2895. This implies that 28% of the variation in leverage is explained by explanatory variables (that is, GDP, inflation, tangibility of asset, liquidity, firm's size, growth, profitability and business risk) 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), Woldemikael (2012) and Guruswamy & Adugnaw (2016). Based on this finding, it is recommended for future researchers to incorporate other macroeconomic factors like unemployment rate and foreign exchange rate that can affect financing decision of Ethiopian insurance entities. And also the results of the findings in different researchers are mostly inconsistent result. Furthermore, the determinants of capital structure decision of insurance sector or other sectors in Ethiopia are recommended as promising research areas for future research.

Reference

Ahmed, N Ahmad Z and Ahmed (2010), *Determinants of capital structure: a case of life Insurance sector of Pakistan*, European Journal of Economics, Finance and Administrative Sciences, vol.24, 7-12

Albulena, S., Skender, A., Vlora, B., & Edona, P. (2014), *The Factors that determine the Capital Structure among Insurance Companies in Kosovo: Empirical Analysis*. Academic Journal of Interdisciplinary Interdisciplinary Studies, MCSER Publishing, Rome-Italy

Amanuel, M. (2011), *The determinants of capital structure: evidence from manufacturing Share companies of Addis Ababa city*, Master˝s thesis, Addis Ababa University.

Bas, T., Muradoglu, G., and Phylaktis, K. (2009), *Determinants of capital structure in developing countries, Cass Business School*, 106 Bunhill Row, London EC1Y 8TZ, U.K.

Bauer, P. (2004), *Determinants of Capital Structure, Empirical Evidence from Czech Republic*, Journal of Economic and Finance, 54, 1-2.

Bayeh, A. (2011), *Capital structure determinants: an empirical study on insurance industry in Ethiopia*, Master's thesis, Addis Ababa University.

Bokpin, G.A. (2009), *Macroeconomic development and capital structure decisions of firms Evidence from emerging market economies*, Studies in Economics and Finance Vol. 26 No. 2, 2009 pp. 129-142 , Emerald Group Publishing Limited 1086-7376.

Brealey, R.A. and Myers, S.C. (2003), *Principles of corporate finance*, (7ᵗʰ ed.), The McGraw−Hill Companies.

Booth, L Aivazian, V Demirguc-Kunt, V and Maksimovic, V (2001), *Capital structures in developing countries*, Journal of Finance, vol. 56, No. 1, 87− 130.

Brooks, C. (2008), *Introductory econometrics for finance*, (2nd ed.), Cambridge University, New York.

Cassar, G & Holmes, S (2003), *Capital structure and financing of SMEs: Australian 97 Evidence*, Journal of Accounting and Finance, vol. 43, 123-47.

Cekrezi, A. (2013), *Analyzing the impact of firm's specific factors and macroeconomic factors on capital structure: A case of small non-listed firms in Albania*, Research Journal of Finance and Accounting, ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online) Vol.4, No.8, 2013.

Charles, M., Peter, M., & Elizabeth, K. (2013), *An Empirical Analysis of Macro-Economic Influences on Corporate Capital Structure of Listed Companies in Kenya*. Journal of Finance and Investment Analysis, vol. 2, no.2, 2013 , 41-62.

Creswell, J.W. (2013), *Research design: Qualitative, Quantitative and Mixed methods approaches*, (4th ed.), Sage Publications, California.

Christopher, N., Sutton, & Beth, J. (2007), *The role of the financial service sector in expanding economic opportunity,* the fellows of Harvard College.

Daniel, B. (2015), *Determinants of Capital Structure of Insurance Companies in Ethiopia.* Master's thesis, Addis Ababa University, college of business and economics

Dereje, G. (2014), *Determinants of Leverage for Unlisted Firms: Evidence from Ethiopian Private Insurance Companies*, Journal of Poverty, Investment and Development - An Open Access .International Journal, Vol.4

Esmael. B. (2015), *Determinants of Capital Structure: A study on Ethiopian Insurance Companies.* Master's thesis, Jimma University.

Farah, R., Komal, K. B., & Shahabud, D. (2014), *Macroeconomic Conditions and Firm's Choices of Capital Structure: Evidence from Pakistan's Manufacturing Sectors.* Middle East Journal of Scientific Research 19(4) , 521-531.

Frank, M Z, & Goyal, V. K. (2003) *Testing the Pecking order Theory of Capital Structure* Journal of Financial Economics, 67, 217-248.

Frank, M.Z. and Goyal, V.K. (2004), *Capital structure decisions: Which factors are reliably important?,* Evidence publicly traded U.S. firms, research paper.

Frank, M.Z. and Goyal, V.K. (2005), *Trade-off and Pecking order theories of debt*, working paper, Center for corporate governance, Tuck school of business at Dartmouth.

Gill, A., Bigger, N., Pai, C., and Bhutani, S. (2009). *The determinants of capital structure in the service industry: Evidence from United States*, *The Open Business Journal*, 2009, 2, 48-53.

Gujarati, D. (2003), *"Basic Econometrics"*, (4th ed.), McGraw-Hill/Irwin.

Guruswamy & Adugnaw.M(2016), *Determinants of Capital Structure of Selected Insurance Companies in Ethiopia*, Developing Country Studies, ISSN 2224-607X (Paper) ISSN 2225-0565 (Online) Vol.6, No.10, 2016.

Hassan, S. U. (2011), *Determinants of capital structure in the Nigerian listed Insurance firms*, International conference on management proceeding,

Han-Suck Song, (2005), "*Capital Structure Determinants-An Empirical Study of Swedish Companies''* CESIS - Centre of Excellence for Science and Innovation Studies, Royal Institute of Technology

Jensen, M. and Meckling, W. (1976), *Theory of the firm: Managerial behavior, agency costs and ownership structure*, Journal of Financial Economics, October, 1976, V. 3, No. 4, pp. 305- 360.

Jensen, M. (1986), *The agency costs of free cash flow: Corporate finance and takeover*, American Economic Review, vol. 76, no. 2, pp. 323-329

Kingsley, T. (2013), *Determinants of Capital Structure of Insurance Companies in Ghana* . Research Journal of Finance and Accounting, Vol.4, No.13, 2013, Open University of Malaysia, Accra Institute of Technology Campus .

Kumar, S., Dhanasekaran, M., Sandhya, S. and Saravanan, R. (2012), *Determinants of financial capital structure on the Insurance sector firms in India*, European Journal of Social sciences, Vol. 29, No. 2, 288-294.

Leedy, P.D. &Ormrod, J.E. (2013), *Practical research: planning and design*. (10th ed.), USA: Pearson Education, Inc. Upper Saddle River, New Jersey.

Lenten, L. J. A. & D. N. Rulli (2006), *A Time-Series Analysis of the Demand for Life Insurance Companies in Australia: An Unobserved Com-ponents Approach.* Australian Journal of Management 31(1): pp. 41-66

Lim T.C, (2012), *Determinants of capital structure empirical evidence from financial services listed firms in china*, International Journal of Economics and Finance, Vol. 4, No. 3, pp. 191-203.

Marshall C, *and* Rossman,R, (2011), *Designing Qualitative Research*, on Amazon.com.

Mehdi A., Saeed F., and Fateme N., (2012), *Analyzing the impact of financial managers' perception of macroeconomic variables on capital structure of firms listed in Tehran stock exchange*, International Journal of Academic Research in Economics and Management Sciences, Vol. 1, No. 3 ISSN: 2226-3624.

Modigliani, F., and Miller, M. (1958), *The Cost of Capital, Corporate Finance and the Theory of Investment. American Economic Review*, Vol. 48, pp. 261-97.

Modigliani, F., and Miller, M. (1963), *Corporate Income Taxes and the Cost of Capital: A Correction. American Economic Review*, Vol. 53, June, pp. 443-53.

Mohamed, S. and Mahmoud, E. (2013), *The impact of corporate characteristics on capital structure: evidence from the Egyptian insurance companies*, research paper in Cairo University.

Mohammed, G. (2014), *Determinants of Capital structure and its impact on the Performance of Ethiopian insurance industry,* master thesis, Jimma University.

Muhammad, M., Gobind, H., Rajar, W., and Wahid, F. (2009), *Economic factors influencing corporate capital structure in three Asian countries: Evidence from Japan, Malaysia and Pakistan*, Indus Journal of Management &Social Sciences, 3(1):9-17.

Muhammad, N., Ahmad, R., Ahmad, U.,Noraini .B., and Melati, A. (2013), *Evidence of capital structure discipline in financial markets: A study of leasing and insurance companies of Pakistan*, Research Journal of Management Sciences, Vol. 2(1), 7-12, ISSN 2319-1171.

Muthama, C., Mbaluka, P., and Kalunda, E. (2013), *An empirical analysis of macro-economic influences on corporate capital structure of listed companies in Kenya*, Journal of Finance and Investment Analysis, vol. 2, no.2, 2013, 41-62 , ISSN: 2241-0998.

Myers, S. C. and Majluf, N. S. (1984), *Corporate financing and investment decisions when firms have information that investors do not have.* Journal of Financial Economics, 13, 187-221
Myers, S. C. (1984). *The capital structure puzzle*, Journal of Finance, Vol. 39, No.3, 575-92.

Naser, N., & Krassimir, P. (2011), *Capital Structure of Insurance Companies in Bahrain .* International Journal of Business and Management Vol. 6, No. 11, November 2011,available on www.ccsenet.org/ijbm.

Naveed, A., Zulfqar, A., & Ishfaq, A. (2010), *Determinants of Capital Structure: A Case of Life Insurance Sector of Pakistan*. European Journal of Economics, Finance and Administrative Sciences, available at http://www.eurojournals.com .

NBE. (2015/16), *Annual Report 2015/16, Addis Ababa, Ethiopia*.

Noulas, A. and Genimakis, G. (2011), *The determinants of capital structure choice: evidence from Greek listed companies,* Alied Financial Economics, Vol. 21, No.6, . 379-387

Olayinka, A (2011), *Determinants of capital structure: evidence from Nigerian panel data*, African Economic and Business Review, Vol. 9, No. 1, spring 2011 ISSN 1109-5609.

Rajan, R G and Zingales, L (1995), *what do we know about capital structure? Some evidence from international data*, Journal of Finance, Vol. 50, 1421-1460

Saddam M. (2014), *Factors Affecting Capital Structure Decision: Evidence from Ethiopian Insurance Firms*, master thesis, Addis Ababa University

Sbeiti, W. (2010), *The determinants of capital structure: Evidence from the GCC countries*, International Research Journal of Finance and Economics ISSN 1450-2887 Issue 47 (2010), Euro Journals Publishing, Inc. 2010

Shah, A. and Khan, S. (2007), *Determinants of Capital Structure: Evidence from Pakistani Panel Data*, International Review of Business Research Papers, Vol. 3, No.4 ,. 265-282.

Sharif, B., Naeem, M. A., and Khan, A. J. (2012), *Firm's characteristics and capital structure: A panel data analysis of Pakistan's Insurance sector*, African Journal of Business Management, Vol.6, No. 14, 4939-4947.

Sidra, A., Bilal and Sumaira, T. (2013), *Determinants of capital structure: What can be the determinants of capital structure of banking sector of Pakistan?*, Proceedings of 3rd, International Conference on Business Management (ISBN: 978-969-9368-07-3).

Simerly, R. L., & Li, M. (2002). *Rethinking the Capital Structure Decision: Translating Research into Practical Solutions*. B>Quest. Retrieved from http://www.westga.edu/~bquest/ 2002/rethinking.htm

Solomon, M. (2012), *Firms characteristics and capital structure: A panel data analysis from Ethiopian insurance industry*, International Journal of Research in Commerce and Management, Vol. 3 (2012), ISSUE NO.12 (DECEMBER), ISSN 0976-2183.

Taiwo, A., & Olumuyiwa, A. T. (2014), *Relationship between Insurance and Economic Growth in Sub-Saharan African: A Panel Data Analysis*, Nigeria.

Tesfaye, T. and Minga, N. (2012), *Institutional, macroeconomic and firm-specific determents of capital structure: The African evidence*, *Management Research Review* Vol. 36 No. 11,2013pp. 1081-1122 Emerald Group Publishing Limited 2040-8269.

Thian C. 2012, *Determinants of Capital Structure Empirical Evidence from Financial Services Listed Firms in China.* International Journal of Economics and Finance, Vol. 4, No. 3, March 2012

Tornyeva, K. (2013), *Determinants of capital structure of insurance companies in Ghana*, Research Journal of Finance and Accounting ISSN 2222-1697 Vol.4, No.13, 2013.

Usman, M. U. (2014), *Determinants of capital structure: Empirical evidence from large taxpayer share companies in Ethiopia,* International Journal of Economics and Finance, Vol. 6, No.1,2014 ISSN 1916-971X E-ISSN 1916-9728 Published by Canadian Center of Science and Education.

Velnampy, P. D., & Niresh, J. A. (2012), *The Relationship between Capital Structure & Profitability*, Global Journal of Management and Business Research (2012), Volume 12, University of Jaffna, Sri Lanka.

Woldemikael, S. (2012), *Determinants of Capital Structure of Commercial Banks in Ethiopia*. Master's thesis, Addis Ababa University.

Appendix 1: Summary of Raw Data

Company Code	Insurance's Name	YEAR	LEV=TL/TA	GDP	INF	TNG=TFA/TA)	LQ=TCA/TCL	SZ=Ln(TA)	Growth=Annual percentage change in total assets	PR=NI/TA	Risk=SD of net profit before tax divided by average net profit before tax
1	EIC	2006	0.6605	0.1154	0.1060	0.0835	1.2307	20.4656	0.1554	0.0534	1.2923
1	EIC	2007	0.6844	0.1179	0.1580	0.0797	1.2072	20.4749	0.0093	0.0881	0.237
1	EIC	2008	0.7382	0.1118	0.2530	0.0728	0.9924	20.5730	0.1031	0.0702	4.5643
1	EIC	2009	0.7444	0.1003	0.3640	0.0683	1.1070	20.6827	0.1160	0.0632	3.7897
1	EIC	2010	0.7588	0.1051	0.0280	0.0697	1.0872	20.8226	0.1501	0.0989	0.1984
1	EIC	2011	0.7972	0.1346	0.1810	0.0802	0.9917	20.9745	0.1641	0.0845	0.2908
1	EIC	2012	0.8246	0.0870	0.3410	0.0585	0.9405	21.3027	0.3884	0.0845	0.281
1	EIC	2013	0.8264	0.0994	0.1350	0.0689	0.9677	21.4558	0.1655	0.1142	0.3909
1	EIC	2014	0.8144	0.1030	0.0737	0.0796	0.9849	21.5523	0.1012	0.1355	0.3668
1	EIC	2015	0.8267	0.1041	0.1010	0.0732	0.9462	21.6276	0.0782	0.1389	0.2273
1	EIC	2016	0.7494	0.0773	-0.2821	0.0665	1.0302	21.7552	0.1362	0.1351	0.6812
2	AFR	2006	0.7051	0.1154	0.1060	0.0508	1.1610	18.8790	0.4511	0.0732	1.2923
2	AFR	2007	0.7481	0.1179	0.1580	0.0387	1.0833	18.9782	0.1043	0.0204	0.237
2	AFR	2008	0.8017	0.1118	0.2530	0.0476	0.9990	19.2533	0.3168	0.0416	4.5643
2	AFR	2009	0.7901	0.1003	0.3640	0.1140	222.9890	19.2878	-0.8943	0.4683	3.7897
2	AFR	2010	0.8079	0.1051	0.0280	0.1773	0.8890	19.6250	12.7188	0.0588	0.1984
2	AFR	2011	0.8224	0.1346	0.1810	0.2100	0.8271	19.8813	0.2921	0.0504	0.2908
2	AFR	2012	0.8118	0.0870	0.3410	0.3034	0.6717	20.0406	0.1728	0.0467	0.281
2	AFR	2013	0.7806	0.0994	0.1350	0.4130	0.5431	20.0234	-0.0171	0.0015	0.3909
2	AFR	2014	0.7698	0.1030	0.0737	0.3618	0.6317	20.1199	0.1013	0.0673	0.3668
2	AFR	2015	0.6726	0.1041	0.1010	0.3199	0.3646	20.2281	0.1143	0.0626	0.2273
2	AFR	2016	0.6417	0.0773	-0.2821	0.3411	0.2626	20.2951	0.0693	0.0580	0.6812

Company Code	Insurance's Name	YEAR	LEV=TL/TA	GDP	INF	TNG=TFA/TA)	LQ=TCA/TCL	SZ=Ln(TA)	Growth=Annual percentage change in total assets	PR=NI/TA	Risk=SD of net profit before tax divided by average net profit before tax
3	AWASH	2006	0.6586	0.1154	0.1060	0.1101	1.1046	18.4804	0.2274	0.0518	1.2923
3	AWASH	2007	0.6863	0.1179	0.1580	0.1494	0.9892	18.7166	0.2665	0.0650	0.237
3	AWASH	2008	0.7015	0.1118	0.2530	0.2066	0.8171	18.8482	0.1406	0.0089	4.5643
3	AWASH	2009	0.7296	0.1003	0.3640	0.2447	0.7856	19.0191	0.1864	0.0213	3.7897
3	AWASH	2010	0.6892	0.1051	0.0280	0.2544	0.8322	19.1947	0.1920	0.0164	0.1984
3	AWASH	2011	0.7387	0.1346	0.1810	0.3425	0.7846	19.6171	0.5255	0.0058	0.2908
3	AWASH	2012	0.7683	0.0870	0.3410	0.2285	0.8507	19.9655	0.4168	0.0793	0.281
3	AWASH	2013	0.7349	0.0994	0.1350	0.2062	0.8890	20.1411	0.1921	0.1485	0.3909
3	AWASH	2014	0.6924	0.1030	0.0737	0.2496	0.1852	20.1780	0.0375	0.1004	0.3668
3	AWASH	2015	0.6951	0.1041	0.1010	0.2580	0.8322	20.2890	0.1174	0.0993	0.2273
3	AWASH	2016	0.6702	0.0773	-0.2821	0.2616	0.8238	20.5502	0.2985	0.0744	0.6812
4	NIC	2006	0.6834	0.1154	0.1060	0.2368	0.7321	17.2660	0.2320	0.0589	1.2923
4	NIC	2007	0.6816	0.1179	0.1580	0.2035	0.9490	17.4950	0.2573	0.0849	0.237
4	NIC	2008	0.6662	0.1118	0.2530	0.1829	0.9315	17.5967	0.1071	0.0462	4.5643
4	NIC	2009	0.6802	0.1003	0.3640	0.1588	0.8112	17.7498	0.1655	0.0542	3.7897
4	NIC	2010	0.7029	0.1051	0.0280	0.1268	0.9921	17.9591	0.2328	0.0475	0.1984
4	NIC	2011	0.7869	0.1346	0.1810	0.0898	1.1206	18.2758	0.3726	0.0028	0.2908
4	NIC	2012	0.7511	0.0870	0.3410	0.0641	1.0525	18.7887	0.6701	0.1244	0.281
4	NIC	2013	0.6919	0.0994	0.1350	0.0498	1.2023	19.0956	0.3592	0.6452	0.3909
4	NIC	2014	0.7362	0.1030	0.0737	0.0432	1.1232	19.3538	0.2946	0.0625	0.3668
4	NIC	2015	0.6778	0.1041	0.1010	0.0480	1.2080	19.4527	0.1039	0.3736	0.2273
4	NIC	2016	0.7195	0.0773	-0.2821	0.0540	1.0739	19.6345	0.1993	0.0629	0.6812

Company Code	Insurance's Name	YEAR	LEV=TL/TA	GDP	INF	TNG=TFA/TA)	LQ=TCA/TCL	SZ=Ln(TA)	Growth=Annual percentage change in total assets	PR=NI/TA	Risk=SD of net profit before tax divided by average net profit before tax
5	NILE	2006	0.7277	0.1154	0.1060	0.1768	1.0210	19.0145	0.1883	0.0357	1.2923
5	NILE	2007	0.7548	0.1179	0.1580	0.1799	0.8810	19.0725	0.0597	0.0227	0.237
5	NILE	2008	0.7671	0.1118	0.2530	0.2323	0.6843	19.0552	-0.0172	-0.0155	4.5643
5	NILE	2009	0.7519	0.1003	0.3640	0.2209	0.7184	19.0884	0.0337	0.0217	3.7897
5	NILE	2010	0.6444	0.1051	0.0280	0.2027	0.9275	19.2317	0.1542	0.1379	0.1984
5	NILE	2011	0.6469	0.1346	0.1810	0.1765	0.9642	19.4050	0.1891	0.0863	0.2908
5	NILE	2012	0.6414	0.0870	0.3410	0.1291	1.0891	19.7131	0.3609	0.1020	0.281
5	NILE	2013	0.6504	0.0994	0.1350	0.1511	1.1108	19.8631	0.1618	0.0986	0.3909
5	NILE	2014	0.6618	0.1030	0.0737	0.1640	1.0900	20.0003	0.1470	0.1126	0.3668
5	NILE	2015	0.6267	0.1041	0.1010	0.1481	1.1534	20.1686	0.1833	0.0816	0.2273
5	NILE	2016	0.6666	0.0773	-0.2821	0.2529	0.8482	20.2953	0.1351	0.0307	0.6812
6	NYL	2006	0.5804	0.1154	0.1060	0.2746	1.1956	18.6345	0.1346	0.0805	1.2923
6	NYL	2007	0.5818	0.1179	0.1580	0.2577	1.0771	18.6571	0.0229	0.0972	0.237
6	NYL	2008	0.6337	0.1118	0.2530	0.2536	0.9721	18.7783	0.1288	0.0142	4.5643
6	NYL	2009	0.5678	0.1003	0.3640	0.3065	0.9063	18.8339	0.0572	0.0183	3.7897
6	NYL	2010	0.5977	0.1051	0.0280	0.2497	0.9823	19.0508	0.2421	0.0159	0.1984
6	NYL	2011	0.5760	0.1346	0.1810	0.2579	1.0176	19.1872	0.1462	0.0011	0.2908
6	NYL	2012	0.5952	0.0870	0.3410	0.1884	1.0995	19.5459	0.4314	0.1401	0.281
6	NYL	2013	0.6179	0.0994	0.1350	0.1747	1.1423	19.8708	0.3839	0.1342	0.3909
6	NYL	2014	0.6029	0.1030	0.0737	0.1438	1.2176	20.1119	0.2726	0.1217	0.3668
6	NYL	2015	0.6251	0.1041	0.1010	0.1053	1.2446	20.4311	0.3760	0.1065	0.2273
6	NYL	2016	0.6415	0.0773	-0.2821	0.0916	1.1745	20.5783	0.1587	0.1030	0.6812

Company Code	Insurance's Name	YEAR	LEV=TL/TA	GDP	INF	TNG=TFA/TA)	LQ=TCA/TCL	SZ=Ln(TA)	Growth=Annual percentage change in total assets	PR=NI/TA	Risk=SD of net profit before tax divided by average net profit before tax
7	GIC	2006	0.4528	0.1154	0.1060	0.1971	2.3062	17.2292	0.3166	0.0313	1.2923
7	GIC	2007	0.4792	0.1179	0.1580	0.3631	1.5432	17.4171	0.2068	0.0546	0.237
7	GIC	2008	0.5543	0.1118	0.2530	0.5417	0.8466	17.6058	0.2076	0.1938	4.5643
7	GIC	2009	0.5767	0.1003	0.3640	0.4529	0.9619	17.8044	0.2198	0.2106	3.7897
7	GIC	2010	0.5951	0.1051	0.0280	0.4937	0.8395	17.9226	0.1255	0.3179	0.1984
7	GIC	2011	0.5741	0.1346	0.1810	0.4540	0.9195	17.9954	0.0755	0.2919	0.2908
7	GIC	2012	0.6815	0.0870	0.3410	0.3489	0.9160	18.3545	0.4320	0.0145	0.281
7	GIC	2013	0.6475	0.0994	0.1350	0.2715	1.1350	18.6375	0.3270	0.1130	0.3909
7	GIC	2014	0.5699	0.1030	0.0737	0.2260	1.3519	18.8530	0.2406	0.1220	0.3668
7	GIC	2015	0.4882	0.1041	0.1010	0.1804	1.6320	19.0436	0.2099	0.1070	0.2273
7	GIC	2016	0.5030	0.0773	-0.2821	0.1478	1.4691	19.2118	0.1831	0.0956	0.6812
8	UIC	2006	0.5297	0.1154	0.1060	0.1500	1.2362	18.2884	0.4259	0.0709	1.2923
8	UIC	2007	0.6009	0.1179	0.1580	0.1409	1.1115	18.5299	0.2731	0.1002	0.237
8	UIC	2008	0.6195	0.1118	0.2530	0.1270	1.1068	18.8090	0.3219	0.0815	4.5643
8	UIC	2009	0.6898	0.1003	0.3640	0.1223	1.0268	18.9672	0.1714	0.0910	3.7897
8	UIC	2010	0.6282	0.1051	0.0280	0.0997	1.1695	19.1726	0.2281	0.0919	0.1984
8	UIC	2011	0.6518	0.1346	0.1810	0.0846	1.1893	19.3721	0.2208	0.0909	0.2908
8	UIC	2012	0.6478	0.0870	0.3410	0.0679	1.2454	19.6969	0.3838	0.1011	0.281
8	UIC	2013	0.6211	0.0994	0.1350	0.0919	1.2684	19.8845	0.2064	0.1732	0.3909
8	UIC	2014	0.6206	0.1030	0.0737	0.3315	0.9112	20.0522	0.1826	0.1412	0.3668
8	UIC	2015	0.5609	0.1041	0.1010	0.4529	0.7286	20.1359	0.0873	0.1306	0.2273

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8	UIC	2016	0.5425	0.0773	-0.2821	0.3330	0.7186	20.3206	0.2029	0.0658	0.6812
9	NIB	2006	0.5944	0.1154	0.1060	0.1254	1.0050	18.1034	0.1795	0.0467	1.2923
9	NIB	2007	0.6282	0.1179	0.1580	0.0859	1.0541	18.4078	0.3557	0.0757	0.237
9	NIB	2008	0.7365	0.1118	0.2530	0.1420	0.8573	18.6529	0.2778	0.0543	4.5643
9	NIB	2009	0.7367	0.1003	0.3640	0.1098	0.9426	19.0792	0.5315	0.0930	3.7897
9	NIB	2010	0.7511	0.1051	0.0280	0.1086	0.9797	19.3421	0.3007	0.0756	0.1984
9	NIB	2011	0.7404	0.1346	0.1810	0.1132	0.9999	19.5381	0.2165	0.0910	0.2908
9	NIB	2012	0.7845	0.0870	0.3410	0.0918	0.9693	19.9792	0.5545	0.0741	0.281
9	NIB	2013	0.7329	0.0994	0.1350	0.0916	1.0518	20.0647	0.0893	0.0891	0.3909
9	NIB	2014	0.6991	0.1030	0.0737	0.0897	1.1079	20.2944	0.2582	0.0960	0.3668
9	NIB	2015	0.6685	0.1041	0.1010	0.1391	1.0994	20.4476	0.1655	0.0693	0.2273
9	NIB	2016	0.6454	0.0773	-0.2821	0.1451	1.0560	20.5251	0.0806	0.0512	0.6812