Addis Ababa University
College of Business and Economics
Department of Management

Determinants of Capital Structure of Insurance Companies in Ethiopia

By:
Daniel Beshir

June, 2015
Addis Ababa

Determinants of Capital Structure of Insurance Companies in Ethiopia

By:
Daniel Beshir

Advisor**:** Yitbarek Takele (PhD)

A thesis submitted to the School of Graduate Studies of Addis Ababa University in partial fulfillment of the requirements for the Degree of Executive Masters of Business Administration

June, 2015
Addis Ababa

Addis Ababa University
College of Business and Economics
Department of Management

Determinants of Capital Structure of Insurance Companies in Ethiopia

By: Daniel Beshir

Approved By Board of Examiners

_____	_____	_____
Adviser	**Signature**	**Date**
_____	_____	_____
Examiner	**Signature**	**Date**
_____	_____	_____
Examiner	**Signature**	**Date**

Declaration

I, undersigned declare that this thesis is my original work. Furthermore, all sources of materials used for the thesis had been duly acknowledged.

Name: _____

Signature: _____

Date: _____

Place: Addis Ababa University

Certification

This is to certify that Daniel Beshir Mohammed has done a study on the topic "*Determinants of Capital Structure of Insurance Companies in Ethiopia*". This study is of his original work and all the sources of materials used for the thesis had been duly acknowledged.

Advisor‟s Name: _____

Signature: _____

Date: _____

Place: Addis Ababa University

Acknowledgment

On the remembrance of uncountable blessings, it‟s with high sense of gratitude offer my sincere thanks to the Almighty God, the creator and preserver.

First, I would like express my deep indebtedness to my advisor, Dr. Yitbarek Takele, for his fruitful support, encouragement, invaluable comments and guidance at various stages of the study. Thank you very much!!

I would like to express my special gratitude to Ato Abate Mitiku, W/ro Martha H/mariam and other staff members of National Bank of Ethiopia for their priceless support and kind assistance in providing me all the necessary data required for the study. I cannot forget all the support.

My dearest brother, Ermias Gebru, please accept my heartfelt thanks and a very special gratitude for all the support, professional guidance and kindness throughout the study. Ermiye, Egzihabher Yesetelegne!!

I would also like to convey my sincere thanks to my parents, especially my late father Beshee and my dear friends whose unconditional love and silent prayers encouraged me throughout my tenure at Addis Ababa University.

Last but not the least; no words to express my special thanks and heartfelt love to my dearest wife “Etsub Dinq Meklit”

Table of Contents

List of tables

Page

List of figures

Page

List of Acronyms

FE	Fixed Effects
LSDV	Least Square Dummy Variable
MM	Modigliani and Miller
RE	Random Effects
OLS	Ordinary Least Square

Abstract

The impact of firm characteristics on the capital structure of the insurance industry is considered to be an important issue in a current business world of solid competition we are living. This study empirically examines the determinants of capital structure of insurance companies in Ethiopia. The study attempt to highlight the critical firm characteristics that managers should consider when setting their "optimal" capital structure. The study employed panel regression model in examining the capital structure of insurance companies in Ethiopia with financial statements of eight insurance companies covering the period of ten consecutive years, 2005-2014. The study used panel data techniques specifically Fixed Effect (FE) robust standard error regressions analyzed using STATA. To purposefully forward conclusion, normality, multicollinearity, heteroscedastcity, autocorrelation and robustness tests were conducted on the data. The results show that pecking order, the static trade-off and agency cost theories are important in explaining the capital structure of insurance companies in Ethiopia, even if the Pecking order theory appears to be dominant. Profitability, asset tangibility, growth and liquidity were found to be significant in relation to leverage. The negative relationship between profitability and leverage is an indication that profitable insurance companies prefer internal sources of finance to external sources, hence less debt in their capital structure. The negative relationship between asset tangibility and leverage is an indication that companies with smaller share of tangible assets tend to be more subject to information asymmetries. It is because intangible assets are more difficult to price and hence the cost of debt increases. The other significant determinant variable, growth opportunity of the firm, had a positive relationship with debt ratio proving that insurance companies depend more on debt to finance their growth. However, liquidity found to be negatively associated with leverage and indicated that Ethiopian Insurance firms with liquid assets will prefer internal sources than debt to finance future investments. The other hypothesized firm level variables, business risk and size of the firm were insignificant.

Chapter One: Introduction

This thesis empirically examines the impact of firm characteristics (profitability, asset tangibility, growth, business risk, firm size and liquidity) on the capital structure of the insurance companies in Ethiopia. This chapter specifically provides background information of the thesis and it's organized in eight sections. The first section deals with background information and followed by statement of the problem. Objectives of the study and Research questions and hypotheses are presented in the third and forth section respectively. The fifth part describes the benefits of the study. Section six discusses scope of the study and followed limitations of the study respectively. The final section presents organization of the thesis.

1.1 Background

Corporate capital structure remains a controversial issue in modern corporate finance. It is rooted since the seminal work by Modigliani and Miller (1958) commonly known as the MM theory. It states that based on the assumption of no brokerage, tax and bankruptcy costs, investors can borrow at the same rate as corporations and they would tend to have the same information as management about the firm‟s future investment opportunities. The MM theory proves that under some restrictions a firm‟s value would be unaffected by its capital structure and thus assumes that earnings before interest and tax (EBIT) would not have been related to the use of debt, that leads to the inference that capital structure may be considered irrelevant.

Even if some of the fundamental assumptions of the theory can be assumed unrealistic in the eyes of investors and other economic agents, the MM irrelevance theory was generally accepted and subsequent research focused on relaxing some of its assumptions to develop a more realistic approach. In this sense, MM came up with another work considering some of the criticisms or deficiencies of their theory and relaxed the assumption that there were no corporate taxes (Modigliani & Miller 1963). A surfeit of research has been undertaken in attempting to identify the determinants of capital structure since the work of Modigliani and Miller (1958).

According to Trade- off theory, optimal debt ratio is set by balancing the trade-off between the benefit and cost of debt. This theory proposes that, the optimal capital structure is achieved when the marginal present value of the tax shield on additional debt is equal to the marginal present value of the financial distress cost on additional debt (Myers 1984). Pecking Order theory emphasizes the information asymmetry between the firm insiders and the outside investors suggesting that firms use debt only when the internal financing is not available (Myers and Majluf 1984). Agency Cost Theory predicts the capital structure choice is based on the existence of agency cost. This theory investigates the relationship between the manager of the firm, and the outside equity and debt holders (Jensen and Meckling 1976).

Starting with Modigliani and Miller (1958), the literature on capital structure has been expanded by many theoretical and empirical contributions. Mohammed Amidu (2007), for non-financial firms the empirical literature has generally converged on particular variables that have been found to be consistently correlated with leverage such as: age, size, growth, profitability, market-to-book ratio, collateral value and dividend policy.

Insurance companies are especially 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. If Insurance companies discontinue to providing Insurance in the economy then it might happen that firms or businesses stop their operations or might face insolvency due to high risk. On the other hand, the researcher believes that the capital structure of Ethiopian Insurance Industry is still a relatively under-explored area.

Businesses are living in a world of stiff competition. To be vigorous in this competition, cost effective mix of capital is a requisite, and organizations need to investigate more on the determinants of capital mix. Insurance industry in Ethiopia is currently a fast growing sector; and there is a need to have formidable data on capital structure determinants about this industry.

Lack of adequate empirical studies in Ethiopia, although few studies have been conducted on the determinates of capital structure (Woldemikael, 2012: Amanuel, 2011) to the best of the researcher‟s knowledge, motivated the researcher to put his own contribution on what factors determine the capital structure of Insurance companies in Ethiopia. Therefore, the main purpose of this study was to empirically examine the relationship between leverage and determinants of capital structure decision of Insurance companies in Ethiopia. This will equip financial managers with applied knowledge of determining their capital structure, and play role in filling gap in understanding of the capital structure decision.

1.2 Statement of the Problem

Capital Structure (CS) is mix of a company's long-term debt, specific short-term debt, common equity and preferred equity. The capital structure shows how a firm finances its overall operations and growth by using different sources of funds. Debt comes in the form of bond issues or long-term notes payable, while equity is classified as common stock, preferred stock or retained earnings. Short-term debt such as working capital requirements is also considered to be part of the capital structure.

While the choice of capital structure is one of the most important strategic financial decisions of firms, it has been the subject of considerable debate and investigation. Since the publication of the Modigliani and Miller‟s (1958) “irrelevance theory of capital structure”, the theory of corporate capital structure has been a study of interest to finance economists.

The determinants of capital structure have been debated for many years and still represent one of the most unsolved issues in corporate finance literature. A few of the developed theories have been tested by empirical studies and the theories themselves lead to different, not mutually exclusive and sometimes opposed result and conclusion. This makes the capital structure debates so exciting (Rajan and Zingales 1995). Morri and Beretta (2008) explained many theoretical studies and much empirical research have addressed those issues, but there

is not yet a fully supported and commonly accepted theory; and the debate on the significance of determinant factors is still unfolded.

According to the trade-off theory, higher profitability lowers the expected costs of distress; therefore, firms increase their leverage to take advantage from tax benefits. Also, agency theory supports this positive relation because of the free cash flow theory of Jensen (1986). Therefore, leverage and profitability are positively related. On the other hand, according to pecking order theory, Myers (1984) discussed that firms prefer to finance with internal funds rather than debt if internal equity is sufficient due to the asymmetric information. Hence, profitability is expected to have negative relation with leverage; and this result is supported by Naveed et al. (2010) empirical investigation.

The firms‟ capital structure, or financial leverage, constitutes this study‟s dependent variable. Modigliani and Miller (1958) are widely regarded as the pioneers in modeling the relevance of capital structure to firm value. Since then the debate has progressed from theoretical modeling to practical reality.

It is recognized that by relaxing the assumptions of Modigliani and Miller (1958) capital structure is relevant to firm value. In a number of literatures, some of the variables that are generally regarded as determinants of capital structure include profitability, age, agency cost, firm risks, asset tangibility, growth, non-debt tax shields, liquidity, political risks, size and others.

Although different studies have made immense contributions to the theory of capital structure, they were almost inclined towards to the developed economy, and less developed countries received little attention. This could be due to the absence of well developed capital market. Consequently, a design feature and the methodology of the research that works well in one country may not work in another.

Lack of empirical studies in Ethiopia to the best of the researcher‟s knowledge, motivated the researcher to put his own contribution on what factors determine the capital structure of

Insurance companies in Ethiopia. In addition, the researcher believed that prior studies on capital structure of Insurance companies in Ethiopia lacks rigor and robustness in methodology of data analysis. Moreover, the existence of debate on theories of capital structure needs further research and analysis.

Therefore, the current study investigated empirically the determinants of Capital Structure of Insurance Industry in Ethiopia during the period 2005-2014, and fills this gap by providing full information about the relationship between leverage and firm specific determinants of capital structure decision.

1.3 Objectives of the study

1.3.1 General Objective of the study

The main objective of this study was to empirically examine the relationship between leverage and firm specific determinants of capital structure (profitability, tangibility, growth, risk, size and liquidity) decision and to understand about the theories of capital structure that can explain the capital structure of the Ethiopian Insurance industry.

1.3.2 Specific Objectives of the study

Based on the above main objective of this study and the problem statement, the study had the following specific objectives

1. To measure the extent to which firm specific determinants of capital structure exert impact on leverage of Insurance companies
2. To identify and test relevant theories that explains the financing behavior of Ethiopian Insurance Industry

1.4 Research Questions and Hypotheses of the Study

Based on the research objective, the following research questions and hypotheses were developed.

Research questions (RQ)

RQ1. What is the relationship between firm specific capital structure determinants and leverage?
RQ2. Which theories explain the financing behavior adopted by Ethiopian Insurance industry?

Hypotheses (HP)

To achieve the objective of this study, in addition to the research questions presented above, the below six alternative hypotheses (H_{ai}) concerning the determinants of capital structure choice on the Ethiopian Insurance industry were empirically tested.

H_{a1} : There is a significant negative relationship between leverage and profitability in Ethiopian Insurance Companies.
H_{a2} : There is a significant positive relationship between leverage and asset tangibility in Ethiopian Insurance Companies.
H_{a3} : There is a significant positive relationship between leverage and growth in Ethiopian Insurance Companies.
H_{a4} : There is a significant negative relationship between leverage and business risk in Ethiopian Insurance Companies.
H_{a5} : There is a significant positive relationship between leverage and size of the firm in Ethiopian Insurance Companies.
H_{a6} : There is a significant negative relationship between leverage and liquidity in Ethiopian Insurance Companies.

1.5 Benefits of the Study

In the current solid competition of Insurance industry, the beneficiaries 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 help in dealing with operating in a competitive environment. In addition, Investors (shareholders‟) and policy makers will also benefit from this study.

1.6 Scope of the Study

This study was focused on the firm specific internal factors of determinates of capital structure of Insurance companies. External factors of these determinate (like economic growth, inflation, interest rate…) were out of the scope of this study. The scope of this study was limited to the relationship between leverage and determinants of capital structure decision of eight Ethiopian Insurance companies over the period 2005 to 2014. Insurance companies operating for less than six years were not included in this study.

1.7 Limitations of the Study

This study faced lack of adequate research studies on capital structure determinates of Insurance companies in the Ethiopian. Moreover, defining and measurement of variables might not be perfectly representing the conceptual and theoretical basis. Accordingly, the econometric model, which was the multiple regressions of variables, might lead to measurement error and inaccurate inferences.

1.8 Organization of the Thesis

The thesis is organized as follows. The first chapter discusses background of the study, statement of the problem, objectives, hypotheses, scope and limitations of the study. Chapter two dwells on review of basic literature on theories of capital structure. The third chapter deals with empirical studies review on determinants of capital structure, and knowledge gap. Moreover, this chapter presents the conceptual and theoretical framework of the study. Chapter four is about research methodology and design. The fifth chapter presents data analysis and interpretation of the different methods used. In addition, in this chapter, analyses are made for testing the hypotheses stated. Finally, chapter 6 presents conclusions and recommendations.

Chapter Two: Theoretical Review of Literature

This chapter of the paper synthesizes, criticizes and reflects on the basic theories of capital structure. The first part of this chapter discusses the basic concepts and definitions. The second part presents the theme of the paper and the argument which is based on the relevance theory of capital structure. The basic theories of capital structure are reviewed in this part.

2.1 Concepts and Definitions

The term capital structure refers to the mix of different types of securities (long-term debt, common stock, preferred stock) issued by a company to finance its assets. A company is said to be unlevered as long as it has no debt, while a firm with debt in its capital structure is said to be leveraged. Note that there exist two major leverage terms: operational leverage and financial leverage. While operational leverage is related to a company‟s fixed operating costs, financial leverage is related to fixed debt costs. Loosely speaking, operating leverage increases the business (or the operating) risk, while financial leverage increases the financial risk. Total leverage is then given by a firm‟s use of both fixed operating costs and debt costs, implying that a firm‟s total risk equals business risk plus financial risk. In this study of capital structure and its determinants, with leverage, it means financial leverage.

2.2 Review of Basic Capital Structure Theories

The publication of the Modigliani and Miller‟s (1958) "irrelevance theory of capital structure", the theory of corporate capital structure has been a study of interest to finance economists. The researcher believed on the relevant capital structure arguments and on the theories that takes in to account market imperfections. The researcher held that it is possible to find an "optimal" capital structure after accounting for market imperfections such as taxes, bankruptcy costs and agency costs.

Over the years major theories of capital structure emerged which diverge from the assumption of perfect capital markets under which the "irrelevance model" is working. The first is the trade-off theory which assumes that firms trade off the benefits and costs of debt and equity financing and find an "optimal" capital structure after accounting for market

imperfections such as taxes, bankruptcy costs and agency costs. The second is the pecking order theory (Myers, 1984, Myers and Majluf, 1984) that argues that firms follow a financing hierarchy to minimize the problem of information asymmetry between the firm‟s managers-insiders and the outsiders‟ shareholders.

Baker and Wurgler (2002) have suggested a new theory of capital structure: the "market timing theory of capital structure". This theory states that the current capital structure is the cumulative outcome of past attempts to time the equity market. Market timing implies that firms issue new shares when they perceive they are overvalued and that firms repurchase own shares when they consider these to be undervalued.

2.2.1 Modigliani and Miller (MM) theory

The theory of business finance in a modern sense starts with the Modigliani and Miller (1958) capital structure irrelevance proposition. Before them, there was no generally accepted theory of capital structure.

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

Modigliani and Miller start by assuming that the firm has a particular set of expected cash flows. When the firm chooses a certain proportion of debt and equity to finance its assets, all that it does is to divide up the cash flows among investors. Investors and firms are assumed to have equal access to financial markets, which allows for homemade leverage. The investor can create any leverage that was wanted but not offered, or the investor can get rid of any leverage that the firm took on but was not wanted. As a result, the leverage of the firm has no effect on the market value of the firm.

However, there is a fundamental difference between debt financing and equity financing in the real world with corporate taxes. Dividends paid to shareholders come from the after tax profit. By contrast, interest paid to bondholders comes out of the before-tax profits. Thus, Miller and Modigliani (1963) argued that in the presence of corporate taxes, a value-maximizing company can obtain an optimal capital structure. In other words, if the market is not perfect, as result of, say, the existence of taxes, or of underdeveloped financial markets, or of inefficient case, firms must consider the costs entailed by these imperfections. A proper decision on capital structure can be helpful to minimize these costs.

2.2.2 The Trade-Off Theory

The term trade-off theory is used by different authors to describe a family of related theories. In all of these theories, a decision maker running a firm evaluates the various costs and benefits of alternative leverage plans. Often it is assumed that an interior solution is obtained so that marginal costs and marginal benefits are balanced.

The original version of the trade-off theory grew out of the debate over the Modigliani-Miller theorem. When corporate income tax was added to the original irrelevance theory, this created a benefit for debt in that it served to shield earnings from taxes. Since the firm's objective function is linear, and there is no offsetting cost of debt, this implied 100% debt financing.

2.2.2.1 The Static Trade-Off Theory

The static trade-off theory claimed that a firm‟s optimal debt ratio is determined by a trade-off between the bankruptcy cost and tax advantage of borrowing, holding the firm‟s assets and investment plans constant (Myers, 1984). The theory affirms that firms have optimal capital structures, which they determine by trading off the costs against the benefits of the use of debt and equity. The goal is to maximize the firm value for that reason debt and equity are used as substitutes. One of the benefits of the use of debt is the advantage of a debt tax shield. One of the disadvantages of debt is the cost of potential financial distress, especially when the firm relies on too much debt.

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

There are more cost and benefits involved with the use of debt and equity. One other major cost factor consists of agency costs. Agency costs stem from conflicts of interest between the different stakeholders of the firm and because of ex post asymmetric information (Jensen and Meckling (1976) and Jensen (1986)). Hence, incorporating agency costs into the static trade-off theory means that a firm determines its capital structure by trading off the tax advantage of debt against the costs of financial distress of too much debt and the agency costs of debt against the agency cost of equity.

2.2.2.2 The Dynamic Trade-Off Theory

Constructing models that recognize the role of time requires specifying a number of aspects that are typically ignored in a single-period model. Of particular importance are the roles of expectations and adjustment costs. In a dynamic model, the correct financing decision typically depends on the financing margin that the firm anticipates in the next period. Some firms expect to pay out funds in the next period, while others expect to raise funds. If funds are to be raised, they may take the form of debt or equity. More generally, a firm undertakes a combination of these actions.

An important forerunner to modern dynamic trade-off theories was Stiglitz (1972), who examines the effects of taxation from a public finance perspective. Stiglitz's model is not a trade-off theory since he took the drastic step of assuming away uncertainty. The first dynamic models to consider the tax savings versus bankruptcy cost trade-off are Kane et al. (1984) and Brennan and Schwartz (1984). Both analyzed continuous time models with uncertainty, taxes, and bankruptcy costs, but no transaction costs. Since firms react to adverse shocks immediately by rebalancing costless, firms maintain high levels of debt to take advantage of the tax savings.

Dynamic trade-off models can also be used to consider the option values embedded in deferring leverage decisions to the next period. Goldstein et al. (2001) observe that a firm with low leverage today has the subsequent option to increase leverage. Under their assumptions, the option to increase leverage in the future serves to reduce the otherwise optimal level of leverage today. Strebulaev (2007) analyzed a model quite similar to that of Fischer et al. (1989) and Goldstein et al. (2001). Again, if firms optimally finance only periodically because of transaction costs, then the debt ratios of most firms will deviate from the optimum most of the time. In the model, the firm's leverage responds less to short-run equity fluctuations and more to long-run value changes.

Certain ideas are fairly general in dynamic models. The optimal financial choice today depends on what is expected to be optimal in the next period. In the next period, it may be optimal to raise funds or to pay them out. If raising new funds, it might be optimal to raise them in the form of debt or in the form of equity. In each case, what is expected to be optimal in the next period will help to pin down the relevant comparison for the firm in the current period.

2.2.3 The Pecking Order Theory

Pecking Order Theory is developed by Myers and Majluf (1984) which stated that capital structure is driven by firm's desire to finance new investments, first internally, then with low-risk debt, and finally if all fails, with equity. Therefore, firms prefer internal financing to external financing. The pecking order theory discussed the relationship between asymmetric information and investment and financing decisions. According to this theory, informational asymmetry, which firm‟s managers or insiders have inside information about the firm„s returns or investment opportunities, increases the leverage of the firm with the same extent. So due to the asymmetric information and signaling problems associated with external financing, the financing choices of firms follow an order, with a preference for internal over external finance and for debt over equity.

The pecking order theory does not take an optimal capital structure as a starting point, but instead asserts the empirical fact that firms show a distinct preference for using internal finance (as retained earnings or excess liquid assets) over external finance. If internal funds are not enough to finance investment opportunities, firms may or may not acquire external financing, and if they do, they will choose among the different external finance sources in such a way as to minimize additional costs of asymmetric information.

In Myers and Majluf model (1984), outside investors rationally discount the firm's stock price when managers issue equity instead of riskless debt. To avoid this discount, managers avoid equity whenever possible. The Myers and Majluf model predicts that managers will follow a pecking order, using up internal funds first, then using up risky debt, and finally resorting to equity. In the absence of investment opportunities, firms retain profits and build up financial slack to avoid having to raise external finance in the future.

The pecking order theory regards the market-to-book ratio as a measure of investment opportunities. With this interpretation in mind, both Myers (1984) and Fama and French (2000) note that a contemporaneous relationship between the market-to-book ratio and capital structure is difficult to reconcile with the static pecking order model. Iteration of the static version also suggests that periods of high investment opportunities will tend to push leverage higher toward a debt capacity. To the extent that high past market-to-book actually coincides with high past investment, however, results suggest that such periods tend to push leverage lower.

2.2.4 The Market Timing Theory

The market timing theory of capital structure argues that firms time their equity issues in the sense that they issue new stock when the stock price is perceived to be overvalued, and buy back own shares when there is undervaluation. Consequently, fluctuations in stock prices affect firms‟ capital structures. There are two versions of equity market timing that lead to similar capital structure dynamics.

The first assumes economic agents to be rational. Companies are assumed to issue equity directly after a positive information release which reduces the asymmetry problem between the firm‟s management and stockholders. The decrease in information asymmetry coincides with an increase in the stock price. In response, firms create their own timing opportunities.

The second theory assumes the economic agents to be irrational (Baker and Wurgler, 2002). Due to irrational behavior there is a time-varying mispricing of the stock of the company. Managers issue equity when they believe its cost is irrationally low and repurchase equity when they believe its cost is irrationally high. It is important to know that the second version of market timing does not require that the market actually be inefficient. It does not ask managers to successfully predict stock returns. The assumption is simply that managers believe that they can time the market. In a study by Graham and Harvey (2001), managers admitted trying to time the equity market, and most of those that have considered issuing common stock report that "the amount by which our stock is undervalued or over- valued" was an important consideration.

This study supports the assumption in the market timing theory mentioned above which is that managers believe they can time the market, but does not immediately distinguish between the mispricing and the dynamic asymmetric information version of market timing. Baker and Wurgler (2002) provide evidence that equity market timing has a persistent effect on the capital structure of the firm. They define a market timing measure, which is a weighted average of external capital needs over the past few years, where the weights used are market to book values of the firm. They find that leverage changes are strongly and positively related to their market timing measure, so they conclude that the capital structure of a firm is the cumulative outcome of past attempts to time the equity market.

Chapter Three: Empirical Studies Review and Conceptual Framework

Theoretical constructs of any empirical research are proxied indirectly through the use of firm characteristics. This chapter discusses the links between the theoretical determinants and the variables chosen in this study by defining the measures of these variables. In addition, the chapter discusses why these explaining variables are chosen and reviewed the major empirical findings of the previous studies. The conceptual framework of the study is also presented in this chapter.

The firms‟ capital structure, or financial leverage, constitutes this study‟s dependent variable. Modigliani and Miller (1958) are widely regarded as the pioneers in modeling the relevance of capital structure to firm value. Since then the debate has progressed from theoretical modeling to practical reality. It is recognized that by relaxing the assumptions of Modigliani and Miller (1958) capital structure is relevant to firm value. In a number of literatures, some of the variables that are generally regarded as determinants of capital structure include profitability, age, agency cost, firm risks, asset tangibility, growth, non-debt tax shields, liquidity, political risks, size and others macro economic factors. Generally, these variables relate to value and risks of the firm as faced by bondholders, equity holders and managers.

By summarizing previous studies, profitability, tangibility, growth, risk, size, and liquidity of assets were selected and included as explanatory variables of the consequent variable, leverage, in the study. The researcher believed that these variables are firm specific characteristics that could sufficiently determine capital structure of insurance companies in Ethiopia. Other variables like agency cost, political risks and other macro economic factors (GDP, interest rate, inflation..) are omitted from this study due to lack of available data and time constraint.

3.1 Empirical Studies Review and Operationalisation of Variables

The major empirical findings of the previous studies are reviewed in the below section. Moreover, Key concepts and variables used in the conceptual frame work are operationalized.

3.1.1 Leverage

Roughly, two major categories of leverage measures exist: those that are based on market value of equity (the market value of equity is normally defined as the number of outstanding shares multiplied by the share price of the last trading day of an accounting year), and those that are based on booked value of equity (Loof, 2003). It is though rather common that due to data limitations, empirical studies uses only leverage measures in terms of book values rather than market values of equity, as is the case in the study by Titman and Wessels (1988). Indeed, for this study, market data is not available, implying that the researcher has to measure leverage in terms of booked values only.

Irrespective of market or book value, choosing an appropriate leverage measure as the dependent variable is a difficult task. Rajan and Zingales (1995) argued that the choice of the most relevant measure depends on the objective of the analysis. Some of the measures of leverage they proposed are indicated in the below table.

Table 3.1 Different Measures of Leverage and corresponding pros and cons

	Leverage (LV) Measure		Pros and cons
1	**Total liabilities /Total assets**	+ - -	The broadest definition of leverage; proxy for what is left for shareholders in case of liquidation. Not a good indication of whether the firm is at risk of default in the near future. May overstate leverage since total liabilities includes items like accounts payable, untaxed reserves etc
2	**Total debt /Total Assets**	+ -	Does not include liabilities like untaxed reserves or accounts payable (for transaction purposes); more appropriate measure of leverage than (1) above. Affected by level of trade credit (i.e. unpaid bills; makes up bulk of accounts payable).
3	**Total debt / Net assets**	+ -	Not influenced by trade credit. (Net assets = total assets − accounts payable − other liabilities). Still affected by factors that have nothing to do with financing, e.g. assets held against pension liabilities.
4	**Total debt / Capital**	+	Probably the best representation of past financing decisions (capital = total debt + equity).
5	**EBIT / Interest expense**	+ -	Measure of the risk that equity holders will not be able to make fixed payments and will have to give up control. Appropriate measure if investment equals in magnitude to depreciation needed to keep the firm a going concern. Based in assumption that short-term liabilities like accounts payable and short-term debt will be rolled over. Very sensitive to income fluctuations.
6	**EBITDA /Interest expense**	+ -	Measure of the risk that equity holders will not be able to make fixed payments and will have to give up control. Appropriate measure if no such investments as in (5) are needed. Based in assumption that short-term liabilities like accounts payable and short-term debt will be rolled over. Very sensitive to income fluctuations
			Note: EBIT = Earnings Before Interest and Taxes. EBITDA = EBIT + Depreciation.
			In addition to the leverage measures depicted in the above table , there exist other leverage measures; for instance, ***the ratio of total debt to equity****; the* ***ratio of long term debt to total assets****, and so on*

Source: Rajan and Zingales (1995)

Given the above different measure of leverage pros and cons and the availability of data set, this paper used total debt over total asset as a proxy measure of leverage. Total debt is the sum of short-term and long-term liabilities. Long term debts, are liabilities beyond one year to maturity, and short term ones have less than one year to expiry date and have to pay off within the current year.

3.1.2 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 choice is to issue debt, then possibly with hybrid securities such as convertible bonds, then eventually equity as a last resort (Brealey and Myers, 1991). This behavior may be 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, in this study, the researcher is claiming 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), Mohammed Amidu (2007), Adesola (2009), in this study the ratio of operating income to total assets were used.

3.1.3 Tangibility of Assets

According to agency cost theory of Jensen and Meckling (1976), 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 suboptimal 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. Modigliani and Miller (1963), in trade-off theory, argue a reduction in financial distress costs for those firms with more tangible assets because of a better chance to get debt financing. Empirical studies, Hassan (2011), Najjar and Petrov (2011), Noulas and Genimaks (2011), Rajan and Zingales (1995), and Titman and wessels (1988) found firms with more proportion of tangible assets can raise more debt because their use as a collateral.

In this paper the researcher claims that Insurance companies with high levels of tangible assets tend to use more debt. As a proxy measure of tangibility, as indicated in the studies of Mohammed Amidu (2007), Adesola (2009), this study used the ratio of fixed assets over total assets.

3.1.4 Growth

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) argues 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 (Myers, 1977 and 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 negative 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 growing firm was financed by more debt. However, the studies of Hassen (2011), Najjar and Petrove (2010), Olayinka (2011), Rajan and Zinglas (1995), Shah and Khan (2007) and Titman and Wessle (1988) showed growing firms are more financed by equity instead of debt. The researcher, in this paper, expects Insurance firms with more growth opportunity to be financed by debt. That is, the researcher claims

firms with a higher proportion of their market value accounted by growth opportunity will have debt capacity. Therefore, it is expected that there is a positive relationship between growth and leverage.

The most common thought proxy for the growth determinant is the so-called market-to-book ratio; the ratio of the market value of assets over the book value of assets (Rajan and Zingales, 1995). According to Myers (1977), high market-to-book ratios are an indicator of investment opportunities and ultimately of expected growth, since an increase in the market-to-book ratio may arise from higher expected cash flows. Other measures of growth include the ratio of capital expenditures over total assets, research and development over sales, and the percentage change in total assets from the previous to current year (Titman and Wessels, 1988). In this study, similar with Mary Dawood et al (2011), Onaolapo and Kajola (2010) growth were measured as annual percentage change in total assets.

3.1.5 Business Risk

The static trade-off theory (Myers, 1984) argues 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, thereby 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.

The researcher, in this study, expects risky Insurance firms tend to be using less debt financing. As indicated in Han-Suck song (2011), 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 Operating Income over total assets as a measure of income variability.

3.1.6 Size of the Firm

If the relationship between firm size and leverage is a proxy for probability of bankruptcy, then size may be an inverse proxy for the probability of bankruptcy, since larger firms are more likely to be more diversified and fail less often. Accordingly, larger firms may issue debt at lower costs than smaller firms. Theoretically, static trade off theory states, for large companies the risk of bankruptcy is minimized due to economy of scale, the assets of that company would be financed in debt more, since this theory argues optimality of capital structure can be reached by balancing the benefits and costs of debt (Modigliani and Miller, 1984). The empirical results of Ahmed et al. (2010), Kumar et al. (2012), and Najjar and Petrove, (2011), supported the argument that the size of the firm and leverage are positively related.

According to pecking order theory, however, informational asymmetry for large firms is smaller and as a result they would prefer to be financed by equity instead of debt (Myers and Majluf, 1984). Because, this reduces the chances of undervaluation of the new issued equity and thus encourage the large firms to use equity financing. This means there is negative relationship between the size and leverage of the firm.

This study expects that large Insurance firms prefer more debt financing instead of equity. There exist many different measures for size, for instance (the log of) sales, number of people employed or size of total assets. In this study, like Booth et al, (2001), Cassar and Holmes (2003), and Mohammad Sayeed (2007), natural log of total asset were used to measure size of the firm.

3.1.7 Liquidity

There are two different opinions on the association between liquidity and capital structure. The first view, as explained in Trade off theory, argues that firms with more liquidity (more current assets) tend to use more external borrowing, because of their ability in paying off their liabilities. The higher liquidity ratio would relatively have higher debt ratio due to greater ability of a firm to satisfy short-term contractual obligations on time.

In contrary to this, the pecking order theory believes firms with financial slack (i.e. liquid assets such as cash and marketable securities) will prefer internal sources than debt or equity to finance future investments (Myers, 1984). Hence they argued negative significant relation between liquidity and capital structure. Most of the previous studies, confirm the negative relation: Ahmed et al. (2011), Harris and Raviv (1991), Najjar and Petrov (2011) and Sharif et al. (2012) founds firms with high liquidity ratios or more liquid assets prefers to use these assets to finance their investments and discourage to raise external funds (either equity or debt). But Bayeh (2011) found insignificant effect of liquidity on leverage usage of Insurance companies.

This paper expects that Insurance firms with high liquid assets prefer to utilize internal financial sources. Therefore, firms with more liquid assets inclined to use these assets instead of external source of finance. Moreover, as used by Naveed et al. (2010), Mary Dawood et al. (2011), the ratio of current asset to current liability were used to proxy liquidity. In general, the below table summarizes the definition of independent variables and their expected relationship with leverage of Insurance Companies in Ethiopia.

Table 3.2 Independent Variables Measurement and expected relationship measurement

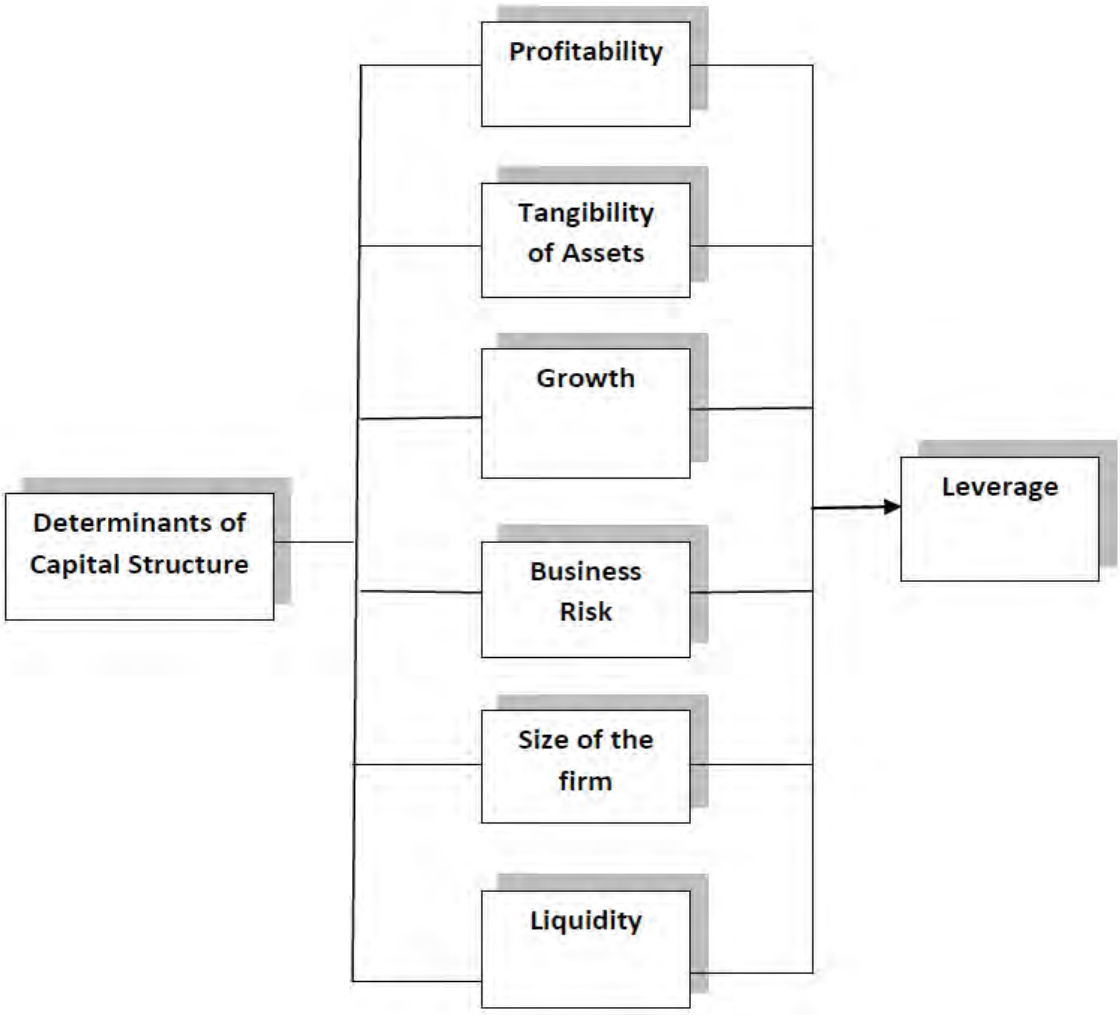
Variable	Measurement Proxy	Theoretical Relationship with leverage	Theories	Expected Relationship with leverage
Profitability (PF)	Operating income/ Total Assets	(+)	Static-Trade off theory	(-)
		(-)	Pecking Order theory	
Tangibility of Assets (TN)	Fixed Asset/ Total Assets	(-)	Agency Cost theory	(+)
		(+)	Static-Trade Off theory	
Growth (GR)	Annual change in Total Assets	(+)	Pecking Order theory	(+)
		(-)	Static-Trade Off theory	
Risk (RK)	Standard deviation of Operating Income	(-)	Static-Trade Off theory Pecking Order theory	(-)
Firm Size (SZ)	Natural Logarithm of Total Assets	(+)	Static-Trade off theory	(+)
		(-)	Pecking Order theory	
Liquidity (LQ)	The Ratio of Current Assets to Current Liabilities	(+)	Static-Trade off theory	(-)
		(-)	Pecking Order theory	

Source: Compiled from review of Literature and Conceptual Framework

3.2 Conceptual Framework

The following conceptual model is formulated to disclose the relationship between leverage and determinants of capital structure of insurance companies in Ethiopia.

Fig 3.1 Conceptual Framework



Source: Based on Previous Research Undertakings

Chapter Four: Research Methodology and Design

This chapter presents the underlying principles of research methodology and design. The purpose is to choose the appropriate research methods for the study.

4.1 Introduction

This study examined the previous findings in the literature and applied the results in current practical settings of the Insurance companies in Ethiopia. In order to achieve the objective stated in the preceding section, considering the nature of the problem and the research perspective, this study used deductive approach. Rigorous steps and robust procedures were used to conduct the analysis of factors determining the capital structure of Insurance companies in Ethiopia. It included the approach to examine the effect of main determinants on capital structure, the type of data used and the techniques employed to collect the data, the sampling mechanism including sample size, the methods utilized to manage and analyze the data, and the process of constructing empirical model with identification and measurement of its components, measurement and selection of variables, a priori expected relations between the dependent and independent variables.

Accordingly, a deductive approach was used by constructing an empirical model and hypothesizing its relationship between determinants and the dependent variable. To comply with the objective of the research, the paper primarily based on quantitative approach. An econometric model was constructed to measure the determinants of capital structure of Insurance companies in Ethiopia. Robust linear regression based on the results of multiple regression analysis was applied to measure the effect of antecedent variables on the consequent variable by using statistical software for data analysis (STATA).

4.2 Research Approach

The deductive approach introduces a high level of objectiveness in research through external observation in so far as the choice of questions and subsequent phrasings are not subjective. In contrast, the inductive approach provides a high level of subjectivity and a number of theoretical possibilities based on the context of the individual research situation Li (2007).

This study examined the previous findings in the literature, and adapted the model in the context of Ethiopian Insurance companies. Therefore, a deductive approach is adopted by constructing an empirical model and hypothesizing its relationship between determinants and its outcome variable: Leverage of Insurance companies in Ethiopia.

4.3 Research Methodology

The methodology to conduct this study was based on the main and specific objectives of the paper. The study was based on quantitative research methodology to construct an empirical model in order to measure the determinants of the capital structure of Insurance companies of Ethiopian. Specifically, multiple regression analysis was used to measure the effect of determinants on the dependent variable; leverage. The use of multiple regressions considers the simultaneous relationships amongst the multiple numbers of independent and dependant variables found across the regression model, therefore it was found suitable for such a study.

Multiple regressions were further utilized to examine the associative relationships between variables in terms of the relative importance of the independent variables and predicted values of the dependent variables. By reviewing previous studies, **profitability, tangibility, growth, risk, size,** and **liquidity of assets** were selected and included as explanatory variables in the model.

4.4 Data Type and Data Source

The study was conducted on secondary data, which was obtained from annual reports of individual Insurance companies and National Bank of Ethiopia (NBE). The advantage of using secondary data includes the higher quality data compared with primary data collected by researchers themselves (Stewart and Kamins, 1993 as cited by Li, 2007).

The study used panel data of Insurance companies in Ethiopia. Chris Brookes (2008) in his book clearly presents the advantage of using panel data as a method to address a broader range of issues and tackle more complex problems than would be possible with pure time-series or pure cross-sectional data alone. By combining cross-sectional and time series data,

one can increase the number of degrees of freedom, and thus the power of the test. Hence, examination of how variables, or the relationships between them, change dynamically (over time) will be achieved by Panel (longitudinal) data. Moreover, the problem of multi-collinearity will be addressed by using panel data rather than individually modeled time series data.

4.5 Target Population and Sample Size

As per the current information from NBE, fifteen Insurance companies are operating in Ethiopia in which all provide General Insurance Service except one, which gives life Insurance. Since the numbers of Insurance companies are few in number, there was no need to take sample from them. Accordingly, based on the years of service, audited financial data of those Insurance companies over the period of 2005 to 2014 was included in this study. The researcher selected the above period in order to use and apply the most recent audited financial statements and to analyze the data at least for ten years. Moreover, obtaining a strongly balanced data for the analysis was the reason behind selecting the above period.

Hence, in order to make the panel data model structured and balanced, the researcher maintained the same regular frequency of the cross-section data with the same start and end dates. Accordingly, six insurance companies did not have the required data for the captioned period. These companies year of service was below six years and excluded from the sampling frame. Moreover, one insurance company is government owned and it was impossible to obtain audited financial statement for the whole period from 2005 to 2014.

Accordingly, ten consecutive years‟ information and data from eight insurance companies‟ over the period of 2005-2014 was used in this study. The researcher used its own fund to collect the data and to conduct the whole research.

Table 4.1 Insurance Companies in Ethiopia

Name of Insurance Company		Year of Establishment
Africa Insurance Company S.C	AFR	1994
Awash Insurance Company S.C	AWA	1994
Global Insurance Company S.C.	GLO	1997
NIB Insurance Company	NIB	2002
Nile Insurance Company S.C	NIL	1995
Nyala Insurance Company S.C	NYL	1995
The United Insurance S.C	UNI	1997
National Insurance Company of Ethiopia S.C.	NIC	1994
Ethiopian Insurance Corporation	EIC	1975
Lion Insurance Company S.C	LYN	2008
Abay Insurance Company	ABY	2010
Berhan Insurance S.C.	BER	2011
Oromia Insurance Company S.C.	OIC	2009
Ethio-Life and General Insurance S.C.	ETH	2008
Tsehay Insurance S.C.	TSH	2012

Source: National Bank of Ethiopia

4.6 Data Collection Instrument

This study reviewed audited financial statements and relevant manuals of each of the Insurance companies that were included in the sample frame.

4.7 Data Analysis Techniques

This study used econometric model to measure the determinants of capital structure of Insurance companies in Ethiopia. Specifically, multiple regression analysis was used to measure the effect of these determinants. Accordingly, the technique to analyze the data was statistical software for data analysis (STATA).

4.8 Model Specification

In this study, multiple regressions were used to determine the most significant explanatory variables affecting the capital structure of Insurance companies in Ethiopia. The general model for this study presented as;

$$\mathbf{Y_{i,t}} = \boldsymbol{\beta_0} + \boldsymbol{\beta}\mathbf{X_{i,t}} + \boldsymbol{\varepsilon_{i,t}}$$

The subscript i representing the cross-sectional dimension and t denote the time-series dimension. The left hand side equation, $\mathbf{Y_{i,t}}$ represent the dependent variable in the model, which is the firm‟s **leverage**. In the right side, $\mathbf{X_{i,t}}$ represent the **set of independent variables** in the estimated model.

The general model developed for the study was:

$$\mathbf{LV_{it}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1}(\mathbf{PF_{it}}) + \boldsymbol{\beta_2}(\mathbf{TN_{it}}) + \boldsymbol{\beta_3}(\mathbf{GR_{it}}) + \boldsymbol{\beta_4}(\mathbf{RK_{it}}) + \boldsymbol{\beta_5}(\mathbf{SZ_{it}}) + \boldsymbol{\beta_6}(\mathbf{LQ_{it}}) + \boldsymbol{\varepsilon}$$

Where;

$LV = Leverage$

$PF = Profitability$

$TN = Tangibility$

$GR = Growth$

$RK = Risk$

$SZ = Size\ of\ the\ firm$

$LQ = Liquidity$

$\varepsilon = Error\ term$

The model was tested for the Classical Linear Regression Model (CLRM) assumptions, Breusch-pagan tests, Hausman tests and robustness diagnosis.

Chapter Five: Data Analysis and Interpretation

This chapter presents the results and analysis of data of selected Insurance Companies in Ethiopia. The chapter is organized into seven sections. The first section 5.1 presents structured review of financial statements; the second section 5.2 presents tests for Classical Linear Regression Model Assumptions. Section 5.3 presents Panel Data Regression Analysis with three models, the Pooled OLS, the fixed effect and random effect models and it's followed by estimation model selection in section 5.4. Section 5.6 presents the modified Wald groupwise hetroscedascticity test for robustness. The last two sections presents the result of robust standard error fixed effect regression model and the results are discussed in depth against each of the hypotheses of this study.

5.1 Structured Review of Financial Records

To empirically investigate on the determinants of capital structure and achieve the objectives stated in the first chapter, all insurance companies in Ethiopia, their year of service greater than six years, were included. Based on the stated year of service, eight Ethiopian insurance companies‟ financial data over the consecutive period of 2005-2014 was collected. Therefore, eighty (8*10) observations were used to empirically analyze the capital structure determinants of the insurance industry in Ethiopian. Balance sheet and income statement were predominantly used in this regard.

Based on the above data source, the following discussions present the results of the financial statement analysis. Accordingly, the result of descriptive statistics, correlation analysis, the test of CLRM assumption and result of the regression analysis are presented in the following sub-sections.

5.1.1 Descriptive Statistics

The descriptive statistics of the dependent and explanatory variables for the sample Insurance Companies were summarized in table 5.1. The total observation of the study was 80. Moreover, the table also shows the mean, standard deviation, minimum and maximum values for the dependent and independent variables.

The mean leverage (total debt to total asset) was 66.8 percent with the standard deviation of 8.3 percent. This means that more than 66 percent of Insurance Companies in Ethiopia were financed by debts. The mean debt ratio in the United States and in UK is 58% and 54% respectively (Rajan & Zingales, 1995). Theoretically, it‟s argued that firms in developed countries are highly levered compared to those in developing markets. 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. Leverage for the sample period was ranged from 45.3 percent to 82.2 percent with a standard deviation of 8.3 percent.

Profitable firms are stronger to face financial distress and stronger to continue more than unprofitable firms in the future. Profitability, given as the ration of operating income to total assets, registered a mean value of 8.1 percent indicating a return on assets of 8.1 percent, with a standard deviation of 4.8 percent. Profitability for the sample was ranged from 4.7 percent to 18.2 percent. This shows the existence of great variation in profit among Insurance Companies in Ethiopia.

The mean of growth (the annual percentage change in total assets) was 23.1 percent with the standard deviation of 15.6 percent. This indicates that, on average, growth rate was 23.1 percent with a maximum value of growth was 67 percent and the minimum value of growth was -6.6 percent. This higher growth standard deviation might be due to the difference in the age of the insurance companies. In the sample, some of the companies were as old as 20 years and others were only 12 years.

On average, 19.4 percent of the companies‟ assets were fixed assets which can be used as collateral. The fixed assets to total asset for the sample were ranged from 2.6 percent to 54.2 percent with standard deviation of 11.02 percent. Capital structure theories state that firms with high asset tangibility should have greater borrowing capacity. Theoretically, stock markets in developing countries are not as efficient and liquid as in developed countries;

therefore, equity financing may not be available. Hence, firms in developing countries rely on high asset tangibility for debt financing, but the asset tangibility ratio was low in this study. The reason might be this study considers only insurance companies, and insurance companies hold less fixed assets as compared to other financial institutions.

The mean of the companies‟ risk, measured by the volatility of earnings (standard deviation of operating income), was 14.07 percent with a standard deviation of 9.9 percent. Insurance companies vary in adopting risk; for this study, risk was ranged between 2.5 percent to 43.2 percent.

Table 5.1 Summary Statistics

```
       panel variable:  ID (strongly balanced)
        time variable:  year, 2005 to 2014
                delta:  1 unit

.         order  ID Insu year, first

.
.         * summary statistics
.         summarize lev  gro tang pr risk size lq

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         lev |         80    .6681625    .0832221        .453        .822
         gro |         80     .23075     .1565307       -.066         .67
        tang |         80    .1942375    .1102422        .026        .542
          pr |         80       .0815    .0485397       -.047        .182
        risk |         80    .1407875     .099126        .025        .432
-------------+---------------------------------------------------------
        size |         80     18.9141     .842617      16.954      20.294
          lq |         80     1.02225    .2639123        .543       2.306
```

Source: Structured Review of Annual Financial Report; Generated from STATA

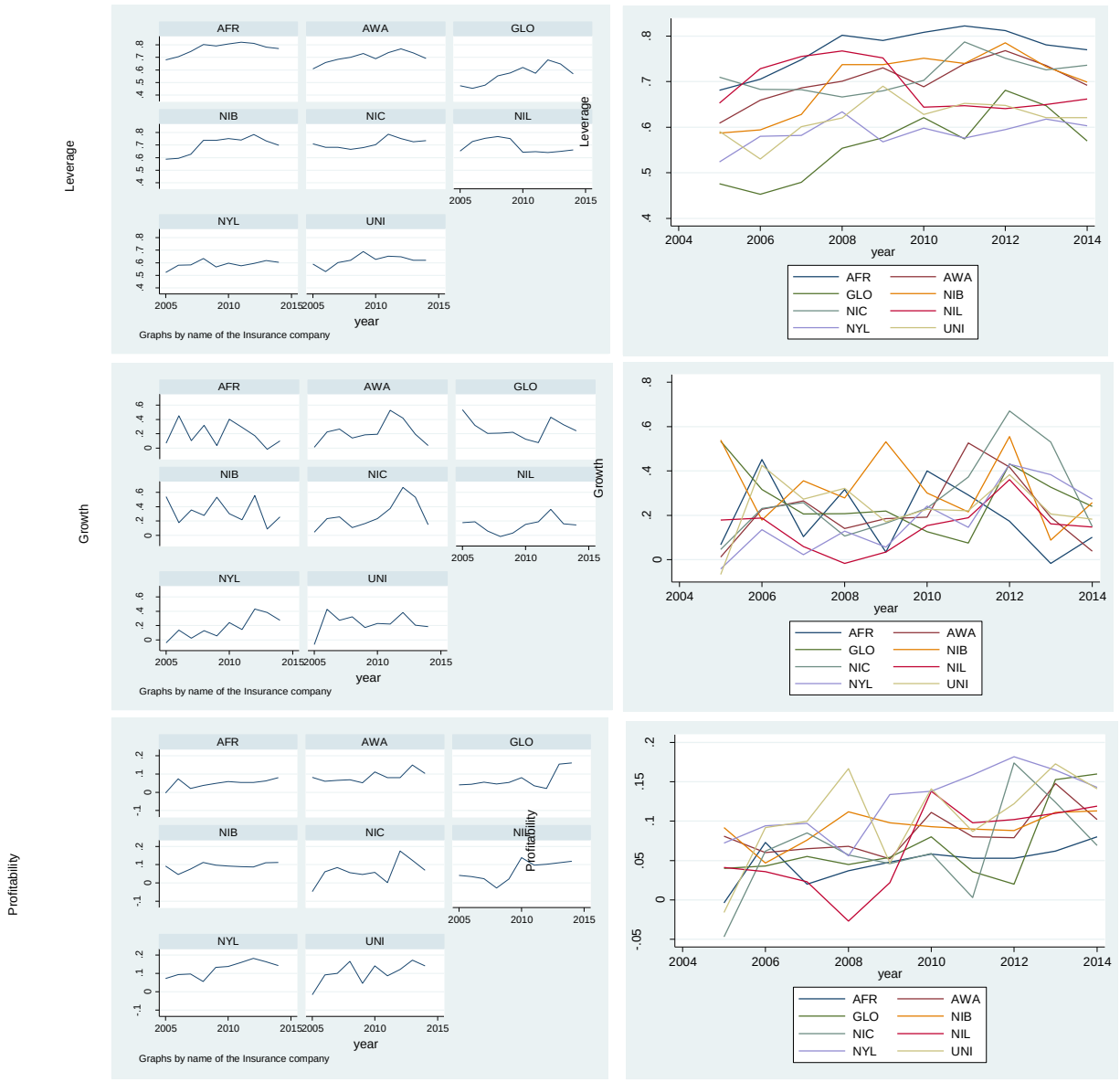
The mean of the firms' size which was represented by the natural logarithm of total assets was 18.91; with a standard deviation of 8.42. Natural logarithms of total assets for the sample were ranged from 16.95 to 20.29.

Moreover, summary of test statistic shows that these insurance companies have the liquidity ratio of 1.02; maximum and minimum values were 2.306 and 0.543 with standard deviation of 0.2639. This reveals as there was high variation in liquidity among these companies.

A table under appendix A.1 presented the detailed summary of statistics. From this table, the standard deviation of leverage **within** the Insurance Company for the sample period was 4.9 percent and **between** companies standard deviation of leverage was 7.0 percent.

The note "(strongly balanced)" in table 5.1 refers to the fact that all sampled Insurance companies have data for all years. If, for example, one company does not have data for one year then the data is unbalanced. The below line graphs further helped to explore the panel data for this study, both by each company and across companies.

Fig 5.1 lines graphs



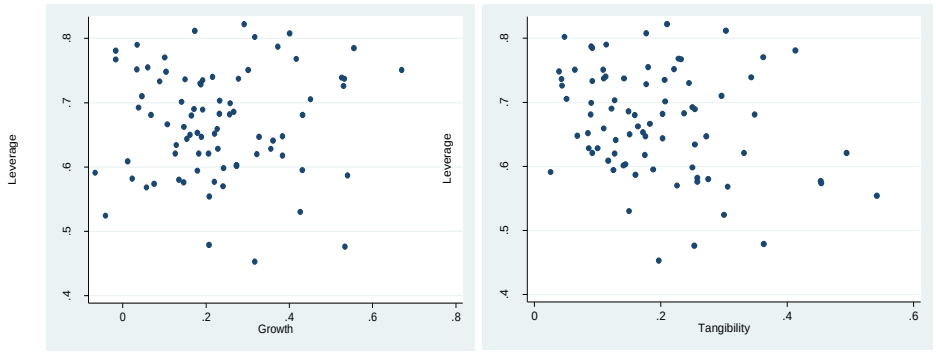
Source: Structured Review of Annual Financial Report; Generated from STATA

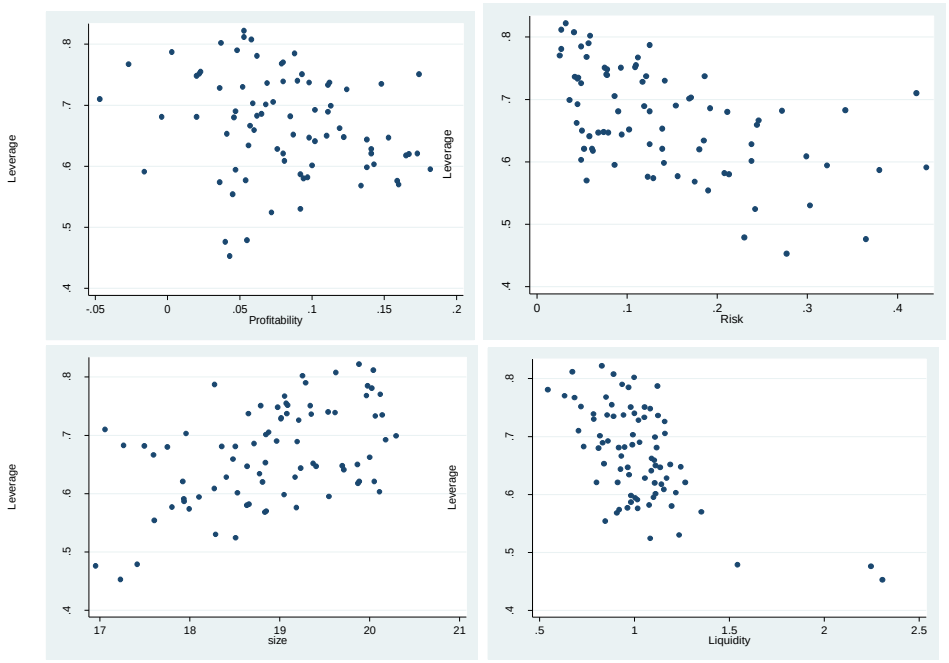
5.1.2 Correlation Analysis

Table 5.2, shows the correlation between the explanatory variable and leverage in this study. As noted in Brooks (2008), Correlation between two variables measures the degree of linear association between them. To find the association of the independent variables with the leverage, Pearson product moment of correlation coefficient was used. Values of the correlation coefficient are always ranged between positive one and negative one. A correlation coefficient of positive one indicates that a perfect positive association between the two variables; while a correlation coefficient of negative one indicates that a perfect negative association between the two variables. A correlation coefficient of zero, on the other hand, indicates that there is no linear relationship between the two variables.

The below graphs presented the scatter plots of each dependent variables on the independent variable, leverage to visualize the linear correlation between these variables.

Fig 5.2 Scatter plots





Source: Structured Review of Annual Financial Report; Generated from STATA

The correlation matrix in Table 5.2 shows that leverage (dependent variable) was negatively correlated with tangibility, profitability, liquidity and risk of the company. Which indicates that firm with higher leverage have less profitability, tangibility, risk and liquidity. However, growth and size have positive correlation with leverage. The correlation with size is significant at 1%. The correlation between leverage and growth, however, is insignificant.

Asset tangibility is negatively correlated with leverage in contrast to what is expected. According to the trade-off theory, since fixed assets can be used as collateral, debt level (leverage) should increase with higher fixed assets. The correlation, however, results in negative relation when we look at the correlations between tangibility and leverage (proxy by total debt to total asset).

The result also shows that leverage was correlated at -0.22 with profitability, at -0.52 with risk and at -0.60 with liquidity. All these independent variables had significant correlation with leverage at 5% level of significance.

Table 5.2 Correlation Matrix

```
. * correlation
. pwcorr lev gro tang pr risk size lq, sig obs
```

	lev	gro	tang	pr	risk	size	lq
lev	1.0000						
	80						
gro	0.0449	1.0000					
	0.6927						
	80	80					
tang	-0.2679	-0.2460	1.0000				
	0.0163	0.0278					
	80	80	80				
pr	-0.2202	0.3280	-0.1005	1.0000			
	0.0497	0.0030	0.3748				
	80	80	80	80			
risk	-0.5254	-0.1012	0.0427	-0.3673	1.0000		
	0.0000	0.3716	0.7067	0.0008			
	80	80	80	80	80		
size	0.4877	0.0268	-0.2133	0.4496	-0.8316	1.0000	
	0.0000	0.8136	0.0575	0.0000	0.0000		
	80	80	80	80	80	80	
lq	-0.6075	0.3055	-0.2429	0.1429	0.2377	-0.2885	1.0000
	0.0000	0.0059	0.0299	0.2062	0.0337	0.0095	
	80	80	80	80	80	80	80

Source: Structured Review of Annual Financial Report; Generated from STATA

5.2 Tests for CLRM Assumptions

Different tests were run to make the data ready for analysis and to get reliable output from the research. These tests were intended to check whether the CLRM (Classical Linear Regression Model) assumptions, i.e. the OLS assumptions, are fulfilled when the explanatory variables are regressed against the dependent variables. Accordingly, the data has to meet certain assumptions as indicated below.

The basic assumptions:

- Correct model: $E(\widehat{U}_{it}) = 0$
- Homoscedasticity: $var(\widehat{U}_{it}) = \sigma^2$
- Serial independent:$cov(\widehat{U}_{it}, \widehat{U}_{js}) = 0\ ;\ for\ i \neq j\ , t \neq s$
- Exogeneity: $cov(x_i, \widehat{U}_i) = 0\ ; X_i\ is\ the\ independent\ varaible$
- Normality: $\widehat{U}_{it} \sim N(0, \sigma^2)$

The first assumption is that the expectation or mean of the error term or unobservable term is zero. The second assumption states that the variance of error terms is constant. Assumption three is made on the disturbance terms that the covariance between the error terms over time (or cross- sectionally, for that type of data) is zero, In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are „auto-correlated" or that they are serially correlated, so that the standard error estimates could be wrong. Thus, there exists the possibility that wrong inferences could be made about whether a variable is or is not an important determinant of variations in the dependent variable (Brook 2008).

Similarly, assumption four also deals with the covariance between the error terms and explanatory variables are zero. As stated in Brook (2008) if one or more of the explanatory variables is contemporaneously correlated with the disturbance term, the OLS estimator will not even be consistent. This results from the estimator assigning explanatory power to the variables where in reality it is arising from the correlation between the error term and dependent variable.

The last assumption, one of the most commonly applied tests for normality is the Shapiro-Wilk test, states that error terms are normally distributed. Thus, the panel data regression models were designed by considering the basic assumptions required for the estimator in OLS. Accordingly, the following sub-section presents tests of CLRM.

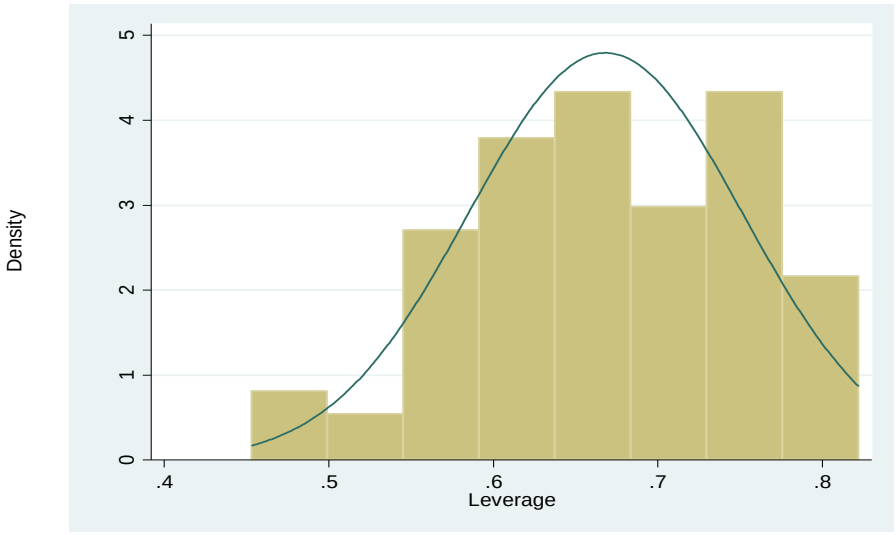
5.2.1 Tests of Normality

There are different interrelated approaches to determine normality: Looking at a histogram with the normal curve superimposed, plotting at normality plots of the data; “Normal Q-Q Plot” and “Normal P-P Plot”, testing the values of Skewness and Kurtosis, and applying established tests for normality that take into account both Skewness and Kurtosis simultaneously like the Shapiro-Wilk (S-W) test.

Histogram

A histogram with the normal curve superimposed provides useful graphical representation of the data. The black line superimposed on the below 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.

Fig 5.3 Histogram



Source: Structured Review of Annual Financial Report; Generated from STATA

"Normal P-P Plot" and "Normal Q-Q Plot"

"Normal P-P Plot" and "Normal Q-Q Plot" provides a graphical way to determine the level of normality. The straight line indicates the values the sample should adhere to if the distribution was normal. The dots are the actual data. If the dots fall exactly on the straight line, then the data are normal. If they deviate greatly from the straight line, your data are non-normal.

Figure 5.4 and fig 5.5 presents the "Normal P-P Plot" and "Normal Q-Q Plot" of the data respectively. Here the result showed that the two plots are approximately fall on the straight line which indicates that the data under study is approximately normally distributed. Hence, the normality assumption is reasonable.

Fig 5.4 Normal P-P Plot

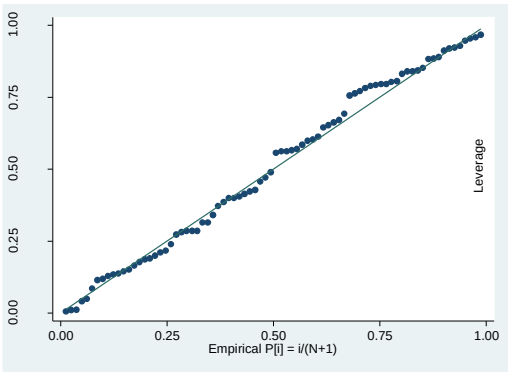
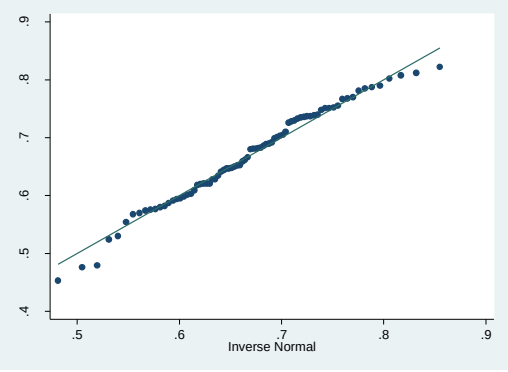


Fig 5.5 Normal Q-Q Plot



Source: Structured Review of Annual Financial Report; Generated from STATA

Skewness and Kurtosis Test

Skewness involves the symmetry of the distribution. Skewness that is normal involves a perfectly symmetric distribution. A positively skewed distribution has scores clustered to the left, with the tail extending to the right. A negatively skewed distribution has scores clustered to the right, with the tail extending to the left.

Kurtosis involves the peakedness of the distribution. Kurtosis that is normal involves a distribution that is bell-shaped and not too peaked or flat. Positive kurtosis is indicated by a peak and Negative kurtosis is indicated by a flat distribution.

The STATA results for the tests of both Skewness and Kurtosis is presented in the below table 5.3. Here the null hypothesis is that the data is normally distributed. The result in table 5.3 showed that we failed to reject the null hypothesis as the P-value is quite high both for Skewness (0.2668) and Kurtosis (0.5469) and the joint test (0.4394); which is greater that the level of significance 0.05. This implied that the data were consistent with a normal distribution assumption.

Table 5.3 Skewness and Kurtosis Test

```
. * Skewness/Kurtosis test
. sktest lev

                    Skewness/Kurtosis tests for Normality
                                                      ------- joint ------
    Variable |   Obs   Pr(Skewness)   Pr(Kurtosis)  adj chi2(2)   Prob>chi2
-------------+-------------------------------------------------------------
         lev |    80        0.2668        0.5469         1.64        0.4394
```

Source: Structured Review of Annual Financial Report; Generated from STATA

Shapiro-Wilk (S-W) Test

The study also looked at established tests for normality that take into account both Skewness and Kurtosis simultaneously. 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.

The result of the Shapiro-Wilk test presented in table 5.4 showed that the P-value of the test is 0.26102. This showed 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 was also implied that the data were consistent with a normal distribution assumption.

Table 5.4 Shapiro-Wilk Test

```
.         * Shapiro-Wilk test
.         * H0 is normal distribution
.         swilk lev

                    Shapiro-Wilk W test for normal data

    Variable |   Obs        W           V         z       Prob>z
-------------+--------------------------------------------------
         lev |    80     0.98049       1.339     0.640    0.26102
```

Source: Structured Review of Annual Financial Report; Generated from STATA

5.2.2 Tests of Multicollinearity

One obstacle that presents difficulty in rendering analysis is the existence of multicollinearity. In order to examine the possible degree of multicollinearity among the explanatory variables, correlation matrixes of the selected explanatory variables were presented in table 5.5. According to Malhotra (2007), usually the multicollinearity exists if the correlation between two independent variables is more than 0.75. Therefore, based on the correlation matrix table 5.5, there is no problem of multicollinearity.

Table 5.5 Correlation Matrix between explanatory variables

	gro	**tang**	**pr**	**risk**	**size**	**lq**
gro	1.0000					
tang	-0.2460	1.0000				
pr	0.3280	-0.1005	1.0000			
risk	-0.1012	0.0427	-0.3673	1.0000		
size	0.0268	-0.2133	0.4496	-0.8316	1.0000	
lq	0.3055	-0.2429	0.1429	0.2377	-0.2885	1.0000

Source: Structured Review of Annual Financial Report; Generated from STATA

5.2.3 Tests of Hetroscedasticity

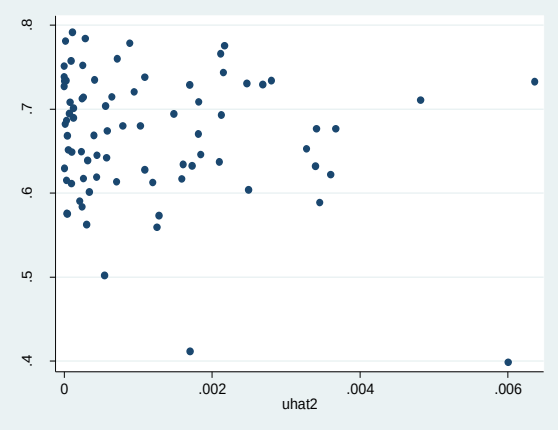
One of the key classical assumptions of regression is that the variance of the errors is constant across observations. If the errors have constant variance, the errors are called homoscedastic. The possible existence of heteroscedasticity is a major concern in the application of regression analysis, including the analysis of variance, because the presence of heteroscedasticity can invalidate statistical tests of significance that assume that

the modelling errors are uncorrelated and normally distributed and that their variances do not vary with the effects being modeled.

Graphical test for Heteroscedasticity

Typically, residuals are plotted to assess the assumption of homoscedasticity. Fig 5.6 presents the plot for residuals for this particular study to check this assumption. The result of the plot fairly showed the absence of hetroscedasticity.

Fig 5.6 Graphical test for Hetroscedasticity



Source: Structured Review of Annual Financial Report; Generated from STATA

The Breusch-pagan test for Heteroscedasticity

The Breusch–Pagan test (named after Trevor Breusch and Adrian Pagan) is used to test for heteroscedasticity in a linear regression model. It tests whether the estimated variance of the residuals from a regression are dependent on the values of the independent variables. In that case, we have heteroskedasticity in our model. Breusch-Pagan tests the null hypothesis that the error variances are all equal; homoscedastic, versus the alternative that the error variances are a multiplicative function of one or more variables; heteroskedastic.

Table 5.6 presented the result of the Breusch-Pagan test for this study. The result showed insignificance (P-value is 0.7441) and accept the null hypothesis of homoscedasticity at a significance level of $\alpha = 0.05$

Both the graphical method and the Breusch–Pagan tests suggested that there is no evidence for the presence of heteroskedasticity for this study.

Table 5.6 the Breusch-pagan test for Heteroscedasticity

```
.         * Bresuch Pagan test
.         reg uhat2 gro tang pr risk size lq

      Source |       SS       df       MS              Number of obs =      80
-------------+------------------------------           F(  6,    73) =    1.91
       Model |  .000020738     6  3.4564e-06           Prob > F      =  0.0899
    Residual |  .000131835    73  1.8060e-06           R-squared     =  0.1359
-------------+------------------------------           Adj R-squared =  0.0649
       Total |  .000152573    79  1.9313e-06           Root MSE      =  .00134

------------------------------------------------------------------------------
       uhat2 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gro |   .0016544   .0011141     1.48   0.142     -.000566    .0038749
        tang |   .0027752    .001601     1.73   0.087    -.0004156     .005966
          pr |  -.0066757   .0039072    -1.71   0.092    -.0144627    .0011113
        risk |   .0029977   .0029247     1.02   0.309    -.0028313    .0088267
        size |   .0001636   .0003906     0.42   0.677    -.0006149     .000942
          lq |   .0006415   .0006828     0.94   0.351    -.0007194    .0020024
       _cons |  -.0033731   .0080423    -0.42   0.676    -.0194015    .0126552
------------------------------------------------------------------------------

.         bpagan gro tang pr risk size lq

Breusch-Pagan LM statistic:  3.499369  Chi-sq( 6)  P-value =  .7441
```

Source: Structured Review of Annual Financial Report; Generated from STATA

5.2.4 Tests of Autocorrelation

As noted in Brooks (2008) this is an assumption that the covariance between the error terms over time (or cross-sectionally, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are „auto correlated" or that they are serially correlated.

Table 5.7 presents the Wooldridge test for autocorrelation in panel data of this study; the null hypothesis being there is no autocorrelation. The result showed very strong evidence against the null hypothesis at $= 0.05$ level of significance and hence the null hypothesis is rejected.

Table 5.7 testing for serial correlation

```
.         *  testing for serial correlation
.         * H0 is no first order autocorrelation
.         xtserial lev gro tang pr risk size lq

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,       7) =     14.759
           Prob > F =      0.0064
```

Source: Structured Review of Annual Financial Report; Generated from STATA

To resolve the autocorrelation problem identified in Wooldridge test, robust models were taken in to consideration. Moreover, the study employed sample of Ethiopian insurance companies, hence the tendency for the fixed effect and random effect models‟ estimates to differ significantly and thus Hausman chi-square test was conducted. The result for Hausman test is presented in the subsequent sections.

5.3 Results of Regression Analysis

The previous section of the paper revealed that the correlation result and various techniques approved the nonexistence of multicollinearity. This helped the researcher to employ multiple regressions to predict the magnitude of each explanatory variable‟s 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 was:

$$\mathbf{LV_{it}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1}(\mathbf{PF_{it}}) + \boldsymbol{\beta_2}(\mathbf{TN_{it}}) + \boldsymbol{\beta_3}(\mathbf{GR_{it}}) + \boldsymbol{\beta_4}(\mathbf{RK_{it}}) + \boldsymbol{\beta_5}(\mathbf{SZ_{it}}) + \boldsymbol{\beta_6}(\mathbf{LQ_{it}}) + \boldsymbol{\varepsilon}$$

Where;

$LV = Leverage$

$PF = Profitability$

$TN = Tangibility$

$GR = Growth$

$RK = Risk$

$SZ = Size\ of\ the\ firm$

$LQ = Liquidity$

$\varepsilon = error\ term$

The researcher conducted regression models and applied different tests (***Breusch and pagan Lagrangian Multiplier (LM) test, Hausman test)*** to choose the best technique for the panel data under this study and to discuss the result accordingly.

- *Pooled OLS (POLS) Model Regression*
- *Pooled OLS with dummy variable (Least Square Dummy Variable: LSDV) Model Regression* ***OR*** *Fixed Effects Model Regression*
- *Random Effects GLS (Generalized Lease Square) Model Regression*

5.3.1 Estimation Result of Pooled OLS (POLS) Model

Table 5.8 presents the result for POLS model regression. The beta coefficient may be negative or positive; beta indicates that each variable‟s contribution for insurance industry in Ethiopia to determine its leverage. The column for t-statistics also indicates the significance of each variable to support the alternative hypothesis whereas p-value indicates at what percentage or precession level of each variable is significant. In general, beta coefficient, t-value and p-value are the key inferential statics for this study to reject or support hypotheses.

In POLS, all the 80 observations pooled together and run the regression model, neglecting the cross section and time series nature of the data. The major problem with this model is that it does not distinguish between the various Insurance companies we have in this study. By combining and pooling the 8 Insurance companies under study, the model denies the heterogeneity or individuality that may exist among these insurance companies.

The POLS result presented in table 5.8 indicated a negative and highly significant relationship between leverage and asset tangibility at 1% level of significance. In addition, the dependent variable, leverage showed the same relationship with profitability, risk and liquidity and highly significant at 1% level for all these explanatory variables. The

relationship between leverage and growth was positive and highly significant at 1% level. Leverage also showed the same relationship with size of the firm. However, the relationship with size is insignificant.

Table 5.8 POLS Model Regression

```
.         * pooled OLS
.         reg  lev gro tang pr risk size lq

      Source |       SS       df       MS              Number of obs =      80
-------------+------------------------------           F(  6,    73) =   58.63
       Model |  .453120138     6  .075520023            Prob > F      =  0.0000
    Residual |  .094026755    73  .001288038            R-squared     =  0.8282
-------------+------------------------------           Adj R-squared =  0.8140
       Total |  .547146893    79   .00692591            Root MSE      =  .03589

------------------------------------------------------------------------------
         lev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gro |   .1196015   .0297538     4.02   0.000     .0603023    .1789007
        tang |  -.2799403   .0427567    -6.55   0.000    -.3651543   -.1947263
          pr |  -.7545635   .1043454    -7.23   0.000    -.9625236   -.5466034
        risk |  -.4092441   .0781082    -5.24   0.000    -.5649135   -.2535748
        size |    .002758   .0104311     0.26   0.792    -.0180311    .0235471
          lq |  -.1827393   .0182358   -10.02   0.000    -.2190832   -.1463954
       _cons |   .9486925   .2147798     4.42   0.000     .5206369    1.376748
------------------------------------------------------------------------------
```

Source: Structured Review of Annual Financial Report; Generated from STATA

5.3.2 Estimation Result of Fixed Effect OR LSDV Model

The Fixed effect or LSDV Model allows for heterogeneity or individuality among the Insurance companies under this study by allowing its own intercept value. The term fixed effect is due to the fact that although the intercept may vary across Insurance companies, but intercept doesn‟t vary over time; that is it‟s time invariant. Both the LSDV model and fixed effect model regression produced similar results. Tables 5.9 and 5.10 presented the regression results of these models respectively.

The fixed effects model result presented in table 5.10 (see appendix B.6 for the full table) indicated a negative and highly significant relationship between leverage and profitability at 1% level of significance. The dependent variable, leverage also showed the same

relationship with risk and liquidity and significant at 1% level for both these explanatory variables. The relationship between debt ratio and tangibility found to be positive and significant at 5% level. The relationship between leverage and growth was positive and significant at 1% level. Leverage also showed positive relationship with size of the firm. However, the relationship with size is insignificant.

Table 5.9 LSDV Model Regression

```
.       * pooled OLS with dummy variable (least square dummy varible model)
.       reg  lev gro tang pr risk size lq i.ID

      Source |       SS       df       MS              Number of obs =      80
-------------+------------------------------           F( 13,    66) =   44.59
       Model |  .491222947    13  .037786381            Prob > F      =  0.0000
    Residual |  .055923946    66  .000847333            R-squared     =  0.8978
-------------+------------------------------           Adj R-squared =  0.8777
       Total |  .547146893    79   .00692591            Root MSE      =  .02911

------------------------------------------------------------------------------
         lev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gro |   .0756501   .0259827     2.91   0.005     .0237739    .1275262
        tang |  -.1365502   .0616762    -2.21   0.030    -.2596906   -.0134097
          pr |  -.5827811   .1030625    -5.65   0.000    -.7885519   -.3770102
        risk |  -.3191334   .1111826    -2.87   0.006    -.5411166   -.0971501
        size |   .0164169   .0153675     1.07   0.289    -.0142653    .0470991
          lq |  -.1200002   .0225356    -5.32   0.000    -.1649941   -.0750064
             |
          ID |
           2 |  -.0150605   .0151297    -1.00   0.323    -.0452678    .0151469
           3 |  -.0654836   .0283067    -2.31   0.024    -.1219998   -.0089674
           4 |  -.0170377    .016536    -1.03   0.307    -.0500529    .0159775
           5 |   .0140076   .0168446     0.83   0.409    -.0196236    .0476389
           6 |  -.0488084    .013498    -3.62   0.001     -.075758   -.0218588
           7 |  -.0732585   .0174573    -4.20   0.000     -.108113   -.0384039
           8 |  -.0565644   .0168577    -3.36   0.001    -.0902219    -.022907
             |
       _cons |   .6145911   .2985314     2.06   0.043      .018554    1.210628
------------------------------------------------------------------------------

. estimates store LSDV
```

Source: Structured Review of Annual Financial Report; Generated from STATA

Table 5.10 Fixed Effects Model Regression

```
. estimates table fixedeffect, star stats(N)

    Variable |  fixedeffect
-------------+-------------
         gro |   .07565006**
        tang |  -.13655019*
          pr |  -.58278108***
        risk |  -.31913338**
        size |    .0164169
          lq |  -.12000023***
       _cons |   .58181542
-------------+-------------
           N |          80
------------------------------
legend: * p<0.05; ** p<0.01; *** p<0.001
```

Source: Structured Review of Annual Financial Report; Generated from STATA

The fixed-effects model controls for all time-invariant differences between the individuals, so the estimated coefficients of the fixed-effects models cannot be biased because of omitted time-invariant characteristics. One side effect of the features of fixed effects model is that they cannot be used to investigate time-invariant causes of the dependent variables. Oscar (2007)

5.3.3 Estimation Result of Random Effect Model

The rationale behind random effects model is that, unlike the fixed effects model, the variation across entities is assumed to be random and uncorrelated with the predictor or independent variables included in the model. Random effect model assume that the entity‟s error term is not correlated with the predictors which allows for time-invariant variables to play a role as explanatory variables. Oscar (2007)

The random effects model result presented in table 5.11 (see appendix B.7 for the full table) indicated that explanatory variables asset tangibility, profitability, business risk and liquidity had a very significant negative relationship with the dependent variable, leverage at 1%

level. The relationship between leverage and growth was positive and highly significant at 1%. Leverage was also related positively with size but the relationship is statistically insignificant.

Table 5.11 Random Effects Model Regression

```
.        estimates table randmffect, star stats(N)

-------------------------------
    Variable |   randmffect
-------------+-----------------
         gro |   .08930053***
        tang |  -.20647371***
          pr |  -.64522938***
        risk |  -.32782574***
        size |   .01511284
          lq |  -.14673795***
       _cons |   .65055834**
-------------+-----------------
           N |          80
-------------------------------
legend: * p<0.05; ** p<0.01; *** p<0.001
```

Source: Structured Review of Annual Financial Report; Generated from STATA

An advantage of random effects is that you can include time invariant variables (for example, gender). In the fixed effects model these variables are absorbed by the intercept. In random-effects you need to specify those individual characteristics that may or may not influence the predictor variables. The problem with this is that some variables may not be available therefore leading to omitted variable bias in the model. Oscar (2007)

5.3.4 Estimation Result of all Models

The summary of the estimation result of all the above models (POLS, LSDV, Fixed Effects and Random Effects) summarized in table 5.12.

Table 5.12 Estimation of all Models

```
.         * All models in one
.         estimates table POLS LSDV fixedeffect randmffect, star stats(N)
```

Variable	POLS	LSDV	fixedeffect	randmffect
gro	.1196015***	.07565006**	.07565006**	.08930053***
tang	-.2799403***	-.13655019*	-.13655019*	-.20647371***
pr	-.75456352***	-.58278108***	-.58278108***	-.64522938***
risk	-.40924414***	-.31913338**	-.31913338**	-.32782574***
size	.00275802	.0164169	.0164169	.01511284
lq	-.18273931***	-.12000023***	-.12000023***	-.14673795***
ID				
2		-.01506046		
3		-.06548359*		
4		-.0170377		
5		.01400765		
6		-.0488084***		
7		-.07325847***		
8		-.05656443**		
_cons	.94869252***	.6145911*	.58181542	.65055834**
N	80	80	80	80

legend: * p<0.05; ** p<0.01; *** p<0.001

Source: Structured Review of Annual Financial Report; Generated from STATA

5.4 Estimation Model Selection

This section of the paper presented techniques to choose the appropriate estimation model among those presented in section 5.3 in order to discuss and interpret the findings against the research questions and research hypothesis.

In this regard, the Breusch and pagan Lagrangian Multiplier (LM) test were used to decide between random effects and POLS and Hausman test to decide between random effects and fixed effects model.

5.4.1 Breusch and pagan LM test

The Breusch and pagan Lagrangian Multiplier (LM) test were used to decide between random effects and POLS. The null hypothsis was that variance across those insurance companies under study is zero; that is, POLS is an appropriate model. And the alternative hypothesis was that Random effects model is appropriate. The result of the test presented in table 5.13

Table 5.13 Breusch and Pagan LM test

```
Breusch and Pagan Lagrangian multiplier test for random effects

        lev[ID,t] = Xb + u[ID] + e[ID,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                     lev |    .0069259       .0832221
                       e |    .0008473        .029109
                       u |    .0003244       .0180107

        Test:   Var(u) = 0
                                chibar2(01) =    10.63
                            Prob > chibar2 =   0.0006
```

Source: Structured Review of Annual Financial Report; Generated from STATA

The result of Breusch and pagan Lagrangian Multiplier (LM) test revealed that there is a very strong evidence (P-value is 0.0006) against the null hypothesis at 0.1% level of significance. Hence, this test suggested random effects model estimation over the Pooled OLS model.

5.4.2 Hausman test

In section 5.2.2 the Wooldridge test for autocorrelation in panel data of this study had been conducted and the result showed the presence of serial or autocorrelation between the error terms, and between error term and regressor variable i.e. endogeneity.

Brook (2008), as cited in Kinde (2011) stated that, in the econometric context, a regressor is said to be endogenous if it is correlated with the error term of the data generating process in the population. Endogeneity problems mainly arise due to omitted variables, measurement

error of explanatory variables, or if there is a reverse causality between the dependent and the explanatory variables, i.e. the dependent variable causing some explanatory variable as well. The problem of omitted variables is presumably the most common reason for endogeneity. For instance, endogeneity may occur if either some variable suggested by the underlying theory in a capital structure analysis is ignored, or the variable cannot be considered due to data unavailability.

To resolve the autocorrelation problem identified in Wooldridge test, Petra (2007) suggested a solution for serially correlated residuals data by assuming the omitted variables are time invariant. A simple fixed effects panel estimator would robust the findings of OLS regression, because the dummy variables included to control for the individual effect automatically control for any time-invariant variable. This constitutes a compelling reason to employ panel estimators wherever possible. It also makes a strong argument to use fixed effects rather than random effects estimators, because random effects require that the regression"s other explanatory variables are uncorrelated with the individual effects.

However, Jean and Michel (2006) suggested that the fixed effects model is preferred in cases where conclusions have to be made on the sample and if the observation (panel data) is less, fixed effects will be more efficient than random effects, while the interests of random effects model are on the overall population.

On the other hand, fixed effects models are difficultly handled by insurance companies since too many individual effects had to be considered. Random effects models should then be preferred, but as mentioned above, some theoretical aspects prohibit its use since estimates of the parameters are biased when heterogeneity is not independent from the regressors.

Therefore, considering the above justifications, the researcher decided to conduct Hausman test to decide between fixed effects and random effects model. The null hypothesis of the Hausman test was that random effects model is more appropriate; that is, the difference in coefficients not systematic and the alternative hypothesis was that fixed effects is appropriate. The result of the test presented in table 5.14

Table 5.14 Hausman LM test

```
.        hausman fixedeffect randomeffect

                 ---- Coefficients ----
              |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
              |  fixedeffect  randomeffect    Difference          S.E.
--------------+----------------------------------------------------------------
          gro |    .0756501     .0893005      -.0136505               .
         tang |   -.1365502    -.2064737       .0699235        .0370321
           pr |   -.5827811    -.6452294       .0624483        .0139125
         risk |   -.3191334    -.3278257       .0086924        .0668405
         size |    .0164169     .0151128       .0013041        .0093627
           lq |   -.1200002    -.1467379       .0267377        .0117708
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       17.21
                Prob>chi2 =      0.0085
```

Source: Structured Review of Annual Financial Report; Generated from STATA

The result of Hausman test showed that there is a very strong evidence (P-value is 0.0085) against the null hypothesis at 0.1% level of significance. That is, the test suggested the fixed effects estimate is preferable to the random effect estimate. Accordingly, the analysis and discussion of result for this study was based on the fixed effects estimates.

5.5 Modified Wald test

In section 5.4.2, fixed effect regression model was selected and the analysis and discussion of result for this study was based on the fixed effect estimates. In order to make the fixed effect estimation result robust, the Modified Wald groupwise hetroscedascticity test in fixed effect regression model was undertaken.

The null hypothesis of the test was Homoscedascticity (constant variance) and the alternative hypothesis was hetroscedascticity. The result of this test shown in table 5.15

Table 5.15 Modified Wald test

```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (8)  =       49.00
Prob>chi2 =      0.0000
```

Source: Structured Review of Annual Financial Report; Generated from STATA

The result revealed very strong evidence (P-value is 0.0000) against the null hypothesis of homoscedascticity. Hence, there was a groupwise hetroscedascticity in fixed effect regression model. Accordingly, robust standard error estimation in fixed effects model was used by the researcher to tackle the groupwise hetroscedascticity problem of the fixed effect estimates.

5.6 Robust Standard Error in Fixed Effect Model

The statistical software package (STATA) result of fixed effect estimates with robust standard error presented in table 5.16. This result was the one used for the analysis and discussion of result for this study research questions and hypothesis testing. Thus, in this paper, based on Oscar (2010), the following time and entity fixed effects regression model was used:

$$Y_{it} = \ X_{it} + \alpha_i + u_{it}$$

$Y_{it} = dependent\ variable\ where\ i = entity, t = time$
$X_{it} = independent\ variable$
$\beta_k = coefficient\ for\ the\ independent\ variable$
$u_{it} = the\ error\ term$
$\alpha_i = the\ unknown\ intercept\ for\ each\ entity\ (n\ entity\ specific\ intercepts), i = 1 \ldots n$

Table 5.16 Fixed Effect Estimates with Robust Standard Error

```
.         * fixed effect with robust standard error
.         xtreg  lev gro tang pr risk size lq , fe robust

Fixed-effects (within) regression               Number of obs      =        80
Group variable: ID                              Number of groups   =         8

R-sq:  within  = 0.7165                         Obs per group: min =        10
       between = 0.8782                                        avg =      10.0
       overall = 0.7918                                        max =        10

                                                F(6,7)             =   1792.72
corr(u_i, Xb)  = 0.4602                         Prob > F           =    0.0000

                                    (Std. Err. adjusted for 8 clusters in ID)
------------------------------------------------------------------------------
             |               Robust
         lev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gro |   .0756501   .0220103     3.44   0.011     .0236039    .1276962
        tang |  -.1365502   .0448711    -3.04   0.019    -.2426534    -.030447
          pr |  -.5827811   .1005475    -5.80   0.001    -.8205382    -.345024
        risk |  -.3191334   .1977057    -1.61   0.151    -.7866332    .1483664
        size |   .0164169   .0243011     0.68   0.521     -.041046    .0738798
          lq |  -.1200002   .0157672    -7.61   0.000    -.1572837   -.0827168
       _cons |   .5818154   .4899886     1.19   0.274    -.5768234    1.740454
-------------+----------------------------------------------------------------
     sigma_u |  .03241705
     sigma_e |  .02910898
         rho |   .553612   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: Structured Review of Annual Financial Report; Generated from STATA

The fixed effect model with robust standard error presented in table 5.16 shows that asset tangibility, profitability, risk and liquidity have negative relation with the debt ratio (leverage). The other two explanatory; growth and size of the company have positive association with leverage.

Table 5.16 indicates that growth was statistically significant (P-value= 0.011) at 5% level of significance. In addition, asset tangibility was significant (P-value=0.019) at 5% level. Company profitability was strongly significant (P-value=0.001) at 1% level and so did liquidity of the firm (P-value=0.000). However, risk and size of the firm were statistically insignificant; with P-value=0.015 and P-value=0.521 respectively.

The statistical software package, STATA, produced three R-squared results. **R-sq within:** The R-squared from the mean-deviated regression, i.e. the ordinary r-squared from running

OLS on the transformed data. The within R-squared is the variability explained by the explanatory variables after taken out the fixed effects. **R-Sq between:** first, this computes the fitted values using the fixed-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, this computes the fitted values using the fixed-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.

From the previous sections, it‟s noted that fixed effect with robust standard error model was selected. Accordingly, R^2-within was used to explain goodness of fit. Table 5.16 indicated a value of R^2-within=0.7165. The adjusted R^2 was calculated and found to be 0.6931. Hence, 69.31% of the variability in leverage is explained by the selected firm-specific factors (Profitability, Tangibility, risk, Growth, liquidity, and Size).

5.7 Discussion of Results

The preceding sections presented the overall results of the study. Thus, this section discussed in detail the analyses of the results for each explanatory variable and their importance in determining leverage ratio. In addition, each of the research hypotheses discussed in chapter one may be rejected or otherwise; based on the finding of the study. Moreover, this section analyzed the statistical findings of the study against the ones suggested by the theoretical literature and the ones found in other empirical studies.

Profitability and Leverage

H_{a1} : There is a significant negative relationship between leverage and profitability in Ethiopian Insurance Companies.

The results of fixed effect with robust standard error model in table 5.16 indicated that profitability had a negative relationship with leverage, and highly significant (p-value = 0.001) at 1%. Thus, the result confirmed a priori hypothesized sign. The null hypothesis is rejected and the result supported the above alternative hypothesis, H_{a1}. That is, as profitability increases, leverage decreases. For every one percent increase in Insurance Companies profitability, ceteris paribus, has a resultant decrease of 58.27 percent on the leverage; and the vice versa.

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). That is firms use retained earnings first and then move to debt and equity. Hence the result also shows that, higher profits increase the level of internal financing in Ethiopian Insurance industry.

Moreover, the negative association between profitability and leverage as per the result of this study is in line with pecking order theory and agency theory. It is also support the findings of Rajan and Zingales (1995), Cassar and Holmes (2003). However, this negative association contradicts with Static trade-off theory (Myers and Majluf, 1984, and Myers, 1984); that argues, profitable firms have greater needs to shield income from corporate tax to increase profit and should borrow more than less profitable firms.

Asset Tangibility and Leverage

H_{a2} : There is a significant positive relationship between leverage and asset tangibility in Ethiopian Insurance Companies

The researcher hypothesized a positive association between asset tangibility and leverage. However, the results of fixed effect with robust standard error model in table 5.16 indicated that tangibility had a negative relationship with leverage. The relationship was significant (P-value = 0.019) at 5%. The result of the study rejected the null hypothesis in favor of the alternative hypothesis H_{a2} as the relationship between leverage and tangibility was found to be significant. However, the alternative hypothesis H_{a2} was not supported for the claim for positive association between leverage and asset tangibility.

A negative relationship between tangibility and leverage in this study is 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 suboptimal 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.

As per information asymmetry theory, companies with smaller share of tangible assets tend to be more subject to information asymmetries. It is because intangible assets are more difficult to price. Therefore, intangible firms will face underinvestment problem more often. Hence, ceteris paribus, these firms will have high cost of debt over time.

The result of this study however is not consistent with the empirical studies of, Hassan (2011), Najjar and Petrov (2011), Noulas and Genimaks (2011), Rajan and Zingales (1995), and Titman and wessels (1988) which found firms with more proportion of tangible assets can raise more debt because they use as a collateral.

Growth and Leverage

H_{a3}: There is a significant positive relationship between leverage and growth in Ethiopian Insurance Companies.

Similar to the researcher‟s expectation, growth opportunity of insurance companies, as shown on table 5.16, have significant and positive (P-value = 0.011) impact on the decision of insurance companies capital structure. Accordingly, the null hypothesis is rejected and alternative hypothesis H_{a3} is accepted.

This finding is in compliance with empirical studies of Ahmed et al. (2010), Noulas and Genimaks (2011), Kumar et al. (2012), and Sharif et al. (2012) found growing firm are financed by more debt. However, it contradicts with the studies of Hassen (2011), Najjar and Petrove (2010), Olayinka (2011), Rajan and Zinglas (1995), Shah and Khan (2007) and Titman and Wessle (1988) that showed growing firms are more financed by equity instead of debt.

The finding of positive association between growth and leverage could be that growing insurance firms should rely more and more on external borrowing to seize market opportunities. This 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 probable 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.

Risk and Leverage

H_{a4}: There is a significant negative relationship between leverage and business risk in Ethiopian Insurance Companies.

The result of this study presented in table 5.16 indicated that business risk is insignificant (P-value=0.151) determinant of capital structure of insurance companies in Ethiopia at 5%. Hence there is no strong evidence to reject the null hypothesis. Accordingly, the claim in the alternative hypothesis H_{a4} that there is significant relationship between leverage and

business risk is not supported. This result is contradicted with the studies of Kinde (2011) and Solomon (2012).

However, the researcher prior hypothesis of negative association between leverage and business risk is supported by the findings of this study. This is 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 is reliable. That is, 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.

As stated above, 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.

Size of the firm and Leverage

H_{a5} : There is a significant positive relationship between leverage and size of the firm in Ethiopian Insurance Companies.

As the fixed effect with robust standard error estimation result on table 5.16 reveals, the size of the insurance firms is insignificant (P-value=0.521) determinant of capital structure of insurance companies in Ethiopia. Hence there is no strong evidence to reject the null hypothesis. Accordingly, the claim in the alternative hypothesis H_{a5} that there is significant relationship between leverage and size of the firm is not supported.

The insignificant relationship could be due to the measurement proxy used to measure size of the firm in this study. This study used natural log of total asset as a proxy measure of size of insurance company. Significant results could be obtained by using other measures for size, for instance, log of sales or premium. The other reason for the insignificant relationship

could be that lending organizations give less emphasis to size of the firm while performing the credit risk analysis.

However, the alternative hypothesis H_{a5} claimed that size of the firm has a positive association with leverage, which implies leverage is higher for large firms and lower for small firms. The result of this study confirms that size of the Ethiopian insurance company positively affects leverage even if it was insignificant. This is in line with trade-off theory and agency theory. Thus, this study can affirm that the alternative hypothesis H_{a5} was maintained. This result of the study is similar with Rajan and Zingales (1995) and Kinde (2011).

Liquidity and Leverage

H_{a6}: There is a significant negative relationship between leverage and liquidity in Ethiopian Insurance Companies.

The results of fixed effect with robust standard error model in table 5.16 indicated that liquidity had a negative relationship with leverage, and highly significant (p-value = 0.000) at 1%. Thus, the result was in accordance with the researcher"s expectation. There is a strong evidence to reject the null hypothesis in favor of the alternative hypothesis H_{a6}. That is, as asset liquidity increases, leverage decreases.

This negative strong significant relationship implied that Ethiopian Insurance firms with liquid assets such as cash and marketable securities will prefer internal sources than debt or equity to finance future investments. This is consistent with the pecking order theory.

The result however contradicts with the trade off theory, which argues firms with more liquidity (more current assets) tend to use more external borrowing, because of their ability in paying off their liabilities. The result also deviates from the empirical study of Kinde (2011).

Chapter Six: Conclusion and Recommendations

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

6.1 Conclusion

Insurance companies are especially 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 they are face during operations. If Insurance companies discontinue to providing Insurance in the economy then it might happen that firms or businesses stop their operations or might face insolvency due to high risk.

The impact of firm characteristics (profitability, asset tangibility, growth, business risk, firm size and liquidity) on the capital structure of the insurance industry is considered to be an important issue in a current business world of solid competition we are living. This study empirically examined the determinants of capital structure of insurance companies in Ethiopia. The determinants are selected based on previous studies.

The study attempted to highlight the critical firm characteristics that managers should consider when setting their "optimal" capital structure. It employed panel regression model in examining the capital structure of insurance companies in Ethiopia with financial statements of eight companies covering the period of ten consecutive years, 2005-2014. The study used panel data techniques specifically Fixed Effect (FE) robust standard error regression to test the hypotheses formulated and to examine the relations and impact of firms‟ characteristics on capital structure choice. Capital structure is the way in which firms can be financed either or in both of debt or equity financing.

This capital structure is measured under this study as leverage. Thus, leverage was used as proxy for capital structure of insurance companies, which was measured as debt ratio- the ratio of total debt to total assets.

Based on the previous studies and extensive literature review, major theories of capital structure which includes static trade-off theory, pecking order theory and agency theory were selected and attempt was made to identify which theory better explains the financial decision behavior of the sampled insurance companies in Ethiopia. The result of this study revealed that pecking order, information asymmetry and the static trade-off theories are important in explaining the capital structure of insurance companies in Ethiopia, even if the Pecking order theory appears to be dominant.

The empirical findings of this study indicate that:
Profitability, ***asset tangibility***, ***growth*** *and* ***liquidity*** *were* ***significant*** *in determining Ethiopian Insurance companies financing decisions.*

- The relationship between profitability and leverage was negative and it is an indication that profitable insurance companies prefer internal sources of finance to external sources, hence less debt in their capital structure. This is in line with the pecking order theory.
- A negative relationship between asset tangibility and leverage was found and it is an indication that companies with smaller share of tangible assets tend to be more subject to information asymmetries. It is because intangible assets are more difficult to price and hence the cost of debt increases. This is in agreement with information asymmetry theory.
- The other significant determinant variable, growth opportunity of the firm, had a positive relationship with debt ratio proving that insurance companies depend more on debt to finance their growth. This supports the pecking order theory‟s claim that firms prefer debt financing for their growth instead of equity due to its riskiness. This could also be related to low cost of debt. Hence positive relationship between leverage and growth was found.
- However, liquidity found to be negatively associated with leverage and indicated that Ethiopian Insurance firms with liquid assets will prefer internal sources than debt to finance future investments. This holds the pecking order theory.

The other firm level variables, ***business risk*** *and* ***size*** *of the firm were found to be* ***insignificant****. These variables do not have influence on firm's financial decisions since the study could not get enough statistical significance.*

- The relationship between business risk and leverage was negative and this is in line with the static trade off theory.
- Firm size however associated positively with leverage as claimed in the static trade off theory.

6.2 Recommendations

Based on the major findings of the study, the researcher indicated the below recommendations

- The analyses indicated that the variables of profitability, asset tangibility, growth and liquidity were significantly related to leverage. Therefore, Insurance companies should pay greater attention to these significant variables in determining their optimal capital structure.
- The study indicated that the pecking order theory prominently appears to exert influence on the Ethiopian insurance industry capital structure. It is, therefore, important for this industry to be focused at optimizing the internal source of finance as an optimal mix for capital structure.
- Considering the current growth opportunity for insurance companies in Ethiopia and the dominant theory explain the financing behavior of Ethiopian insurance companies being pecking order theory as per this study, internal sources of fund should also be considered. Otherwise, it may lead to bankruptcy by loading more debt on these companies.
- On the other hand, according to the static trade off theory, these insurance companies can obtain optimal capital structure by trading off between net tax benefit of debt financing and bankruptcy costs. To do so, insurance companies should strengthen their relationships with banks and other financial institutions, which enable them to raise more debts.

- In connection with the above recommendation, the negative relation between tangibility of assets and leverage implies that investors in Ethiopian insurance industry might not be using their tangible assets as collateral for debt financing and there might not be proper valuation of the assets due to information asymmetry. Thus, the managements of insurance companies should do more in eliminating the information asymmetries with investors.
- Financing access, either debt or equity, is the major issue for any firm for the expansion of its business. These equity and debt financing can be facilitated from capital markets. Therefore, the government should work hard to establish or facilitate the establishment of capital market to mitigate financing problem besides to the banks role in loan access.

Directions for further research

This study examined only firm specific determinants of capital structure of Insurance companies in Ethiopia. Other factors affecting the firms‟ financing decision might exist than those hypothesized by this study and imperfections in proxies while measuring explanatory variables might also be occurred.

The macro-economic factors (like inflation, GDP, interest rate), other qualitative factors (management quality of each insurance company, policies and procedures); and ownership structure of the companies which might have an impact on the capital structure choice and the effect of regulation on solvency and capital structure of insurance companies are recommended as promising area for further research.

Bibliography

Abate G. 2012, „Factors Affecting Profitability of Insurance Companies in Ethiopia: Panel Evidence, Master"s thesis, Addis Ababa University

Adesola, W A 2009, „Testing static trade-off theory against pecking order models of capital structure in Nigerian firms", Global Journal of Social Sciences, vol.8, 61-76.

Ahmed, N Ahmad Z and Ahmed I 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

Amanuel, M 2011, "The determinants of capital structure evidence from manufacturing share companies of Addis Ababa city", Master"s thesis, Addis Ababa University

Amidu, M 2007, „Determinants of capital structure of banks in Ghana", Baltic Journal of Management, Vol.2 No. 1, 2007, 67-79

Atkeson, A., and H. Cole, 2005, "A dynamic theory of optimal capital structure and executive compensation", working paper, NBER 11083.

Baker, M., and J. Wurgler, 2002, „Market timing and capital structure" Journal of Finance.

Bayeh, A 2011, „Capital structure determinants: an empirical study on Insurance industry in Ethiopia", Master"s thesis, Addis Ababa University

Bevan, A and Danbolt J 2002, „Capital structure and its determinants in the UK: a decomposition analyses", Alied Financial Economics, vol. 12, no. 3, 159-170.

Bevan, A and Danbolt J 2004, „Testing for inconsistencies in the estimation of UK capital structure determinants", Alied Financial Economics, vol. 14, no.1, 55-66

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

Brealey, R.A. and Myers, S.C., (2003), Principles of Corporate Finance, 7th ed., McGraw Hill.

Brennan, M.J., and E.S. Schwartz, 1984, „Optimal financial policy and firm valuation", Journal of finance, 39.

Brooks, C 2008, Introductory Econometrics for Finance, 2nd ed., Cambridge University, New Work

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

Creswell, J W 2009, Research design: qualitative, quantitative and mixed methods aroaches, 3rd ed., Sage publications, United State of America.

Dittmar, A., 2004, "Capital structure in corporate spinoffs", Journal of Business, 77.

Fama, E., and K.R. French, 2002, "Testing trade-off and pecking order predictions about dividends and debt", Review of Financial Studies 15, 1-33.

Fischer, E.O., R. Heinkel, and J. Zechner. 1989. Dynamic capital structure choice: Theory and tests. The Journal of Finance 44(1), (March): 19-40.

Gill, A., Biger, N., Pai, C., & Bhutani, S. (2009). The determinants of capital structure in the service industry: evidence from United States. The Open Business journal, 2, 48-53.

Goldstein, R., N. Ju, and H. Leland, 2001, "An EBIT-based model of dynamic capital structure",
Journal of Business 74, 483-512.

Graham, J.R., and C. Harvey, 2001, "The theory and practice of corporate finance: evidence from the field", Journal of Financial Economics 60, 187-243.

Han-Suck Song, 2005, "Capital Structure Determinants-An Empirical Study of Swedish Companies

Harris, M., Raviv, A., 1991. The theory of capital structure. Journal of Finance 46 (1), 297-355.

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

Hijazi, S. T. and Tariq, Y. B. (2006), "Determinants of capital structure: A case for the Pakistani cement industry," The Lahore Journal of Economics, Vol. 11,No. 1, 63-80.

Jean, P & Michel, D 2006, „Fixed versus random effects in Poisson regression models for claim counts: A case study with motor insurance", Universit´e Catholique, Belgium.

Jeffrey M. Wooldridge 2009, "Introductory Econometrics", Fourth Edition, Michigan State University, South-Western Cengage Learning, USA

Jensen, M 1986, „The agency costs of free cash flow: corporate finance and takeovers", American Economic Review, vol. 76, no. 2, 323-329.

Jensen, M.C., and W.H. Meckling, 1976, "Theory of the firm: managerial behavior, agency costs and ownership structure", Journal of Financial Economics , 305-360.

Kane, A., A. Marcus, and R. MacDonald. 1984. How big is the tax advantage to debt? Journal of Finance 39:841–52.

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.

Lööf, H., 2004, Dynamic optimal capital structure and technical change, Structural Change and Economic Dynamics, 15(4), 449-468.

Mary Hany A, Dawood, El-Sayeda, M & Mohamed, S 2011, „The determinants of capital structure in listed Egyptian corporations", Journal of Middle Eastern Finance and Economics, vol. 9, 84-99.

Malhotra, N 2007, Marketing Research: An Applied Orientation, 5th ed., Phi, New Delhi

Mezgebe, M 2010, „Assessment of the reInsurance business in Developing Countries: Case of Ethiopia", MA thesis, Graduate School of Business Leadership, University of South Africa

Modigliani, F., and M.H. Miller, 1958," The cost of capital, corporate finance and the theory of investment", American Economic Review 48, 261-297.

Modigliani, F., and M.H. Miller, 1963, "Corporate income taxes and the cost of capital: A correction, American Economic Review" 53, 433-443.

Molla Solomon Abate, 2012, Firms" characteristics and Capital structure: A panel Data Analysis from Ethiopian Insurance Industry, International Journal of Research and Management, Vol N. 3 (2012), Issue No. 12, Dec 2012

Morri, G, & Beretta, C 2008, „The capital structure determinants of REITs, Is it a peculiar industry?" Journal of European Real Estate Res; vol. 1, 6-57.

Myers, S C 1984, „The capital structure puzzle", Journal of Finance, Vol. 39, 575-92

Myers, S C and Majluf, N 1984, „Corporate financing and investment decisions when firm have information that investors do not have", Journal of Financial Economics, Vol. 13, 187-221.

Nadeem, A & Zongjun,W 2011, „Determinants of capital structure : An empirical study of manufacturing industry of Pakistan", Managerial Finance, vol. 37, 117-33.

Najjar,N and Petrov, K 2011, „Capital structure of Insurance companies in Bahrain", national Journal of Business and Management Vol. 6, No. 11

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, vol. 24, 7-12.

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

Octavia, M and Brown, R 2008, „Determinants of Bank capital structure in developing countries", Research Paper Series, Department of Finance, The University of Melbourne, Victoria 3010, Australia.

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.

Onaolapo, A & Kajola, S 2010, „Capital structure and firm performance: Evidence from Nigeria", European Journal of Economics and Finance, vol. 25, 70-82.

Oscar Torres-Reyna, 2007, Panel Data Analysis: Fixed and Random Effects, Princeton University, V. 4.2

Petra, T 2007, Panel data: Fixed effects, Random effects, Dynamic panel data models, Cambridge University Press.

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

Ross S A Westerfield, R W and Jaffe, J 2002, Corporate finance, McGraw – Hill, USA.

Sayeed, Mohammad Abu, 2011. The Determinants of Capital Structure for Selected Bangladeshi listed Firms. International Review of Business Research Papers. Vol. 7. No. 2, 21-36

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.

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.

Strebulaev, I. A. 2007. Do tests of capital structure theory mean what they say? Journal of Finance 62(4): 1747–87.

Stiglitz, J.E., 1972, "A re-examination of the modigliani-miller theorem", American Economic Review 59, 784-793.

Teker, D., Tasseven, O., and Tukel, A. (2009), "Determinants of capital structure for Turkish firms: A panel data analysis," International Research Journal of Finance and Economics, Vol. 29, 179-187.

Titman, S., 2001, The Modigliani and Miller theorem and market efficiency, Working paper, National Bureau of Economic Research.

Titman, S. and Roberto W., 1988, The Determinants of Capital Structure, Journal of Finance,
43(1), 1-19.

Weldemikael S. 2012, „Determinants of Capital Structure of Commercial Banks in Ethiopia" Master"s thesis, Addis Ababa University

Wolfgang, D & Roger, F 2003, „What are the determinants of the capital structure? Some evidence for Switzerland," Journal of Financial Economics, vol. 12, 40-51.

Wooldridge, M 2002, Econometric analysis of cross-section and panel data, MIT Press, Massachusetts.

Yuqi Li (2007) Determinants of Banks" Profitability and Its Implication on Risk Management Practices: Panel Evidence from the UK, the University of Nottingham.