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ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ACCOUNTING AND FINANCE
MSc in Accounting and Finance Program

**Impact of capital structure Determinant on profitability of insurance
company in Ethiopia**

A Thesis Presented in Partial Fulfillment of the Requirements for the
Degree of Master of Science (Accounting and Finance)

Advisor

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Addis Ababa

2018

Statement of declaration

I declare that the thesis entitled: The impact of capital structure determinant on profitability of insurance companies in Ethiopia, hereby submitted by me in partial fulfillment of the requirements for the Degree of Master of Science (Accounting and Finance) at the University of Addis Ababa, is my original work and has not been submitted for any degree in any other university. I have undertaken it independently with the advice of my advisor, Abebe Yitayew (PhD). In performing the thesis I have used different sources and material which have been acknowledged.

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2018

Statement of certification

This is to certify that Firezer Legesse Tulu has carried out his research work on the topic entitled “The impact of capital structure determinant on profitability of insurance companies in Ethiopia”. The work is original in nature and is suitable for submission for the award of the M.Sc. Degree in Accounting and Finance.

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Table of content

Contents

Acknowledgments.....	v
Chapter1: Introduction.....	1
1.1 Background	1
1.2 Statement of the Problem.....	2
1.3. Objectives of the Study	4
1.3.1 General objective	4
1.3.2 Specific objective.....	4
1.4 Research Questions and Hypotheses of the Study	5
1.4.1 Research questions (RQ).....	5
1.5 Significance of the study.....	6
1.6 Scope and limitation of the Study	7
1.7 Structure of the thesis.....	7
Chapter 2: Review of related literature	8
2.1 Overview of the Ethiopian insurance industry.....	8
2.2 Theoretical Literature Review	10
2.2.1 Theory of Capital Structure and profitability.....	10
2.2.1.1 The Modigliani-Miller (MM) Theory	11
2.2.1.2 The Trade-Off Theory.....	12
2.2.1.2.1 Static trade-off theory	13
2.2.1.2.2 The Dynamic Trade-off Theory	14
2.2.1.3 The pecking order theory	15
2.2.1.4 The Market timing theory	16
2.2.1.5 The signaling theory	17
2.3 Empirical studies on determinant of capital structure.....	18
2.4.1 Dependent Variables	22
2.4.2 Independent Variables.....	23
2.5 Summary of variable and measurements	26
Chapter 3: Research Design and methodology	27

3.1 Introduction.....	27
3.2 Research Approach	27
3.3 Research Methodology	28
3.4 Data Type and Data Source	28
3.5 Target Population and Sample Size	28
3.6 Data Collection Instrument	29
3.7 Data Analysis Techniques.....	29
3.8 Model Specification	30
Chapter four: Data analysis and interpretation	31
4.1. Descriptive statistics	31
4.1.1 Pearson correlation matrix:	32
4.2 Tests for the Classical Linear Regression Model (CLRM) assumptions	33
4.2.1 The errors have zero mean ($E(\varepsilon) = 0$)	33
4.2.2 Homoscedasticity (variance of the errors is constant ($\text{Var}(u_t) = \sigma^2 < \infty$)).....	34
4.2.3 Unit root test	34
4.2.4 Multicollinearity Test.....	37
4.2.5 Normality (errors are normally distributed ($u_t \sim N(0, \sigma^2)$)).....	38
4.3 REGRESSION ANALYSIS	39
4.3.1 Fixed vs. Random effect model	39
4.3.2 Discussion of the Result.....	42
4.3.3 Summary of finding	45
Chapter Five: Conclusion and Recommendation.....	47
5.1 Conclusion	47
5.2 Recommendation	49
5.3 Future research directions	49
Appendix: Summaries of raw data	56

List of Acronyms

AFIC – Africa Insurance Companies
AIC – Awash Insurance Companies
CS - Capital structure
EIC - Ethiopian Insurance Corporation
FE – Fixed Effect
GR – Growth
GIC – Global insurance companies
GDP – Gross Domestic Product
HP – Hypothesis
LEV – Leverage
LIQ – Liquidity
MM- Modigliani and Miller
MOFED – Ministry of finance and economic development
NBE – National bank of Ethiopia
NICE – National Insurance Companies of Ethiopia
NIC – Nile Insurance Companies
NYIC – Nyala Insurance Companies
NBIC – Nib Insurance Companies
OLS – Ordinary Least Square
ROI - Return on investment
RQ – Research Question
SZ - Firm size
TN - Asset tangibility
UIC – United Insurance Companies
WACC – Weighted Average Cost of capital

List of Table

Table 2.1 Variable summary.....	24
Table 3.1 List of insurance companies.....	27
Table 4.1 Descriptive stastics.....	29
Table 4.2 Correlation matrix.....	30
Table 4.3 Hetroskedasticity test.....	32
Table 4.4 Unit root test leverage.....	33
Table 4.5 Unit root test liquidity.....	34
Table 4.6 Unit root test Growth.....	34
Table 4.7 Unit root test Size.....	35
Table 4.8 Unit root test Tangibility.....	35
Table 4.9 Multicolliniarity test.....	36
Table 4.10 normality Test.....	37
Table 4.11 Hausman test.....	39
Table 4.12 Random effect regression result.....	39

Abstract

Capital structure choice is one of the most important decisions faced by firm management. Thus, the major focus of this study was to investigate empirically firm specific factors such as, firm leverage, growth opportunities, size, tangibility and liquidity were impacts on performance in Ethiopian insurance industry. To achieve the research objectives panel analysis was used. In this study, the researcher used only secondary data. All insurance companies were included in the sample frame if they had Ten years annual report from 2007-2016 annual reports. The statistical tests were used includes: descriptive statistics, correlation, specific linear assumption and random effect regression estimation model, a relationship was established between firm specific factors and performance, measures return on asset (ROA) of the firms over a period of ten years. The results show that firm liquidity, Size, and asset tangibility were significant impact on performance of Ethiopian insurance companies, while firm growth and leverage have insignificant relation with ROA. From the findings the researcher recommended that the sample of Ethiopian insurance industry use more debt than equity in financing their business activities, if the value of business can be enhanced with debt capital, it is dangerous for the firm therefore they should decrease their debt level. Each Ethiopian insurance industry establishes with the aid of professional financial managers, that particular debt-equity mix that maximizes its value and minimizes its weighted average cost of capital.

Keywords: *capital structure, performance, Ethiopian insurance industry, Returns on asset.*

Chapter1: Introduction

The capital structure of a firm is the specific mixture of debt and equity a firm employs in financing its Operations. The capital structure decision is very important for insurance companies. This is because of the need to maximize returns to shareholders and other stakeholders. Also, the impact on the organization's cost of capital and its ability to deal with its competitive environment. Firms can use either debt or equity capital to finance their assets. The best choice is a mix of debt and equity. The present study mainly analyses how far the capital structure affects the Profitability of insurance companies in Ethiopia. The study tries to establish the hypothesized relationship as to how far the capital structure affects the business revenue of firms and what the interrelationship is between capital structure and Profitability.

This thesis empirically examines the impact of capital structure determinant on firm performance in the case of insurance companies in Ethiopia. This chapter specifically provides background information of the thesis and it's organized in six sections. The first section deals with background information and followed by statement of the problem. Objectives of the study, Research questions and hypotheses are presented in the third and fourth section respectively. The fifth part describes the benefits of the study. Section six discusses scope of the study.

1.1 Background

The term capital structure is used to represent the proportionate relationship between debt and equity. The various means of financing represent the financial structure of a business. Traditionally, short term borrowings were excluded from the list of methods of financing the firm's capital expenditure. Capital structure decisions are one of the three financing decisions – investment, financing, and dividend decisions finance managers have to make. Financing is a major decision area of a firm. In the financing decision the manager is concerned with determining the best financing mix or capital structure of his firm. The capital structure decision is the mix of debt and equity that a company uses to finance its business (Booth, 2001).

Knowledge about capital structures can mostly be derived from data for developed economies that have many institutional similarities (Booth, 2001). It is important to note that different countries have different institutional arrangements, mainly with respect to their tax and bankruptcy codes, the existing market for corporate control, and the roles banks and securities markets play. The historical attempt to developing the theory of capital structure began with the presentation of a paper by Modigliani and Miller which revealed the situations under what conditions the CS is relevant or irrelevant to the financial performance of the listed companies. Most of the decision making process related to the CS are deciding factors when determining the CS, a number of issues e.g. cost, various taxes and rate, interest rate have been proposed to

explain the variation in Financial Leverage across firms these issues suggested that depending on the attributes that caused the cost of various sources of capital the firm's select CS and benefits related to debt and equity financing.

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.

The knowledge of capital structure is one of the most important concepts made in financial management because it ultimately affects the wealth of the Institution. So, one of the main objectives of the financial manager is to ensure the lower cost of capital to maximize the value of the company, (Shah and Khan, 2007). An appropriate capital structure is a critical decision for any business organization to be taken by business organization for maximization of shareholders wealth and sustained growth.

The capital structure of a firm describes the way in which a firm raised capital needed to establish and expand its business activities. It is a mixture of various types of equity and debt capital a firm maintained resulting from the firms financing decisions. In one way or another, business activity must be financed. Without finance to support their fixed assets and working capital requirements, business could not exist. In all aspects of capital investment decision, the capital structure decision is the vital one since the profitability of an enterprise is directly affected by such decision. Therefore, proper care and attention need to be given while determining capital structure decision.

This research comes in with the intention of investigating the impact of capital structure determinant on firm performance of Ethiopian Insurance Companies. Justify the relationship of Asset tangibility, Liquidity, Growth opportunity, size of the firm, and leverage with performance of Ethiopian Insurance Companies and identify the theory of capital structure which explains the financing decision of Ethiopian Insurance Companies.

1.2 Statement of the Problem

A firm's capital structure refers to the mix of its financial liabilities. It has long been an important issue from the strategic management standpoint since it is linked with a firm's ability to meet the demands of various stakeholders. Debt and equity are the two major classes of liabilities, with debt holders and equity holders representing the two types of investors in the

firm. Each of these is associated with different levels of risk, benefits, and control. While debt holders exert lower control, they earn a fixed rate of return and are protected by contractual obligations with respect to their investment. Equity holders are the residual claimants, bearing most of the risk and have greater control over decisions. Therefore an appropriate capital structure is a critical decision for any business organization (Abor & Biekpe, 2005).

The best performance of any industry in general and any firm in particular plays the role of increasing the market value of that specific firm coupled with the role of leading towards the growth of the whole industry which ultimately leads to the overall success of the economy. Measuring the performance of financial institutions has gained the relevance in the corporate finance literature because as intermediaries, these companies in the sector are not only providing the mechanism of saving money and transferring risk but also helps to channel funds in an appropriate way from surplus economic units to deficit economic units so as to support the investment activities in the economy.

When regarding to a firm's capital structure, the Modigliani-Miller theorem opened a literature on the fundamental nature of debt versus equity. The capital structure of a firm is the result of the transactions with various suppliers of finance. In the perfect capital markets world of Modigliani and Miller, the costs of different forms of financing do not vary independently and therefore there is no extra gain from opportunistically choosing among them. The various theories of capital structure differ in their interpretation of these factors. Each emphasizes some cost and benefits of alternative financing strategies, so they are not designed to be general. According to the standard trade-off theory, taxes and bankruptcy account for the corporate use of debt. According to the standard pecking order theory, adverse selection accounts for the corporate use of debt. Both theories having weak parts, it is not surprising that there is active research on this matter. In the market timing theory, there is no optimal capital structure, so market timing decisions accumulate over time into the capital structure outcome. From this point of view, the market timing theory appears to have the most explanatory interest.

The insurance industry in particular is part of immune and repair system of an economy and successful operation of the industry can set energy for other industries and development of an economy. To do so the insurance industry is expected to be financially solvent and strong through being profitable in operation. Hence, not only measuring the financial performance of insurance companies but also clear insight about factors affecting financial performance in the industry is then the problem to be investigated. Therefore, the determinants of insurance company's performance have attracted the interest of academicians, practitioners and institutional supervisors.

The absence adequate empirical studies in Ethiopia concerning determinants of capital structure and its impact on profitability of insurance companies' is then what motivated the researcher to put his own contribution on what factors affect the financial performance of insurance companies. In Ethiopia as to the knowledge of the researcher there were few papers, which relates with this title these are Kebede (2011) investigated the determinants of capital structure in Ethiopia small scale manufacturing co-operatives, Bayeh(2011)investigate empirically capital. Those previously conducted research in Ethiopia were a few investigated determinants of capital structure. But, the aim this research was to investigated the determinants of capital structure and its impacts on the performance of the firm. This study attempted to reduce the gap by analyzing of impact capital structure determinant on performance specifically in Ethiopian insurance industry. Hence, these are important issues to be investigated for the insurance managers, professionals, regulators and policy makers to support the sector in achieving the excellence so that required economic outcomes could be obtained.

Therefore, the current study investigated empirically the impact of Capital Structure determinant on performance of Insurance Industry in Ethiopia during the period 2007-2016, and fills this gap by providing full information about the relationship between performance and firm specific determinants of capital structure decision.

1.3. Objectives of the Study

1.3.1 General objective

The main objective of this study is to examine the impact of capital structure determinant on firm performance in the case of insurance companies in Ethiopia. The study also used to understand about the theories of capital structure that can explain the capital structure of the Ethiopian Insurance industry.

1.3.2 Specific objective

In addition to the above general objective this study specifically

- Measure the extent to which firm specific determinants of capital structure exert impact on performance of Insurance companies
- Examine the most important theory of the capital structure for Ethiopian Insurance Companies

1.4 Research Questions and Hypotheses of the Study

1.4.1 Research questions (RQ)

RQ1. What is the relationship between firm specific capital structure determinants and performance?

RQ2. Which capital structure theory is more appropriate for Ethiopian insurance companies?

1.4.2 Hypotheses (HP)

To achieve the objective of this study, in addition to the research questions presented above, the below five alternative hypotheses concerning the determinants of capital structure choice on the Ethiopian Insurance industry were empirically tested.

Firm leverage

The pecking order theory of capital structure shows that if a firm is profitable, then it is more likely that financing would be from internal sources rather than external sources. In other words, firms tend to use internally generated funds first and then resort to external financing. This implies that profitable firms will have less amount of leverage (Myers and Majluf, 1984).

Ha0: There is a significant negative relationship between leverage and profitability in Ethiopian Insurance Companies.

Ha1: There is a significant positive relationship between leverage and profitability in Ethiopian Insurance Companies.

Asset Tangibility

Agency theory suggests that collateralized assets can be used as a monitoring instrument to control managers, and prevent threats of transferring wealth from debt holders to shareholders. Lenders require collateral since it is considered an explicit promise over debt. Therefore, a positive relationship is expected between tangibility asset and performance.

Ha0: Asset tangibility has a significant positive relationship with firm profitability in Ethiopian Insurance Companies.

Ha1: Asset tangibility has a significant negative relationship with firm profitability in Ethiopian Insurance Companies.

Firm Growth

According to the pecking order theory, growing firms look out for external funds to finance the growth. This is as a result of exhausting the internally generated funds. Firms with a higher proportion of their market value accounted for by growth opportunity will have debt capacity. Therefore, there is a positive relationship between firm growth and performance

Ha0: Firm growth has a significant positive relationship with profitability of Ethiopian Insurance Companies.

Ha1: Firm growth has a significant negative relationship with profitability of Ethiopian Insurance Companies.

Liquidity

Liquidity is the firm's ability to meet its short term obligations as they become due. The more the liquid firm, the more able it is to pay off interest on debt. Fama and French (2002) found a positive relationship of liquidity with profitability.

Ha0: Liquidity has a significant positive relationship with profitability in Ethiopian Insurance Companies.

Ha1: Liquidity has a significant negative relationship with profitability in Ethiopian Insurance Companies.

Size of the firm

Trading-off theory assumes that large firms are more diversified, have lower risk, better reputation, more stable cash flows and fewer hazards to be liquidated. This gives large firms easier access to the capital markets with negligible debt costs. Thus these firms are stronger to face bankruptcy and financial distress. Consequently a, positive relationship between a firm's size and profitability is expected.

Ha0: Firm size has a significant positive relationship with profitability of Insurance Companies in Ethiopian.

Ha1: Firm size has a significant positive relationship with profitability of Insurance Companies in Ethiopian.

1.5 Significance of the study

The main objective of this study was to identify the impact of capital structure determinant on firm performance of Ethiopian insurance industry. In general, this study will cover many aspects of the topic but specifically it has been tried to determine the relationship between capital structure determinants and profitability of the firm. This study especially will help the managers

to take the financing decision for their firms. The creditors can also take the benefit to minimize their risk, in funding a specific sector firms. This study will be beneficial to Ethiopian insurance company's management and investors in making clear decisions on capital structure. In addition to the above, a lot of work is written because of the endless argument on capital structure theories. This study is another contribution to the existing work on the study of the impact of capital structure on profitability of Ethiopian insurance companies.

1.6 Scope and limitation of the Study

The Scope of these studies is limit to the Investigation of the Determinants of Capital Structure on profitability and the studies are restricted to Ethiopia insurance Company, Covering the period between 2007 and 2016. In this study, the researchers were used the data only from income statement and balance sheet during the period of 2007-2016. In this study, the researcher would select six variables that determine the capital structure of the Ethiopian Insurance Companies and also, this study will focuses only on the issues that extracted in the research objective and research question. This study faced lack of adequate research studies on the impact of capital structure determinant on the performance of Insurance companies in Ethiopia. This study was based on secondary data collected from National Bank of Ethiopia. Therefore, the quality of the study depends on the accuracy, reliability and quality of the secondary data source. Approximation and relative measure with respect to the data source might impact the results.

1.7 Structure of the thesis

The research paper is structured as follows. The first chapter discusses background of the study, statement of the problem, objectives, hypotheses, significance, and scope of the study. The second chapter 2, contains a review of the literature including, the Modigliani-Miller Theorem, theories of capital structure, empirical studies on determinants of capital structure profitability of the firm and overview of insurance industry in Ethiopia. The third chapter deals with research methodology. The fourth chapter is also presents the analysis and empirical finding. The last chapter five which is presents the conclusion of the finding and recommendation.

Chapter 2: Review of related literature

The literature review section of the study cover the overview of the Ethiopian insurance industry and capital requirement, the theoretical and empirical studies review in the areas of capital structure and profitability. Moreover, it presents the variable summary and conceptual framework as well as the knowledge gap and conclusion.

2.1 Overview of the Ethiopian insurance industry

The history of insurance service in Ethiopia is as far back as modern form of banking service in Ethiopia which was introduced in 1905. At the time of an agreement between Menelik II and a representative of the British owned National Bank of Egypt to open a new bank in Ethiopia. Similarly, modern insurance service, which were introduced in Ethiopia by foreigners, mark out their origin as far back as 1905 when the bank of Abyssinia began to transact fire and marine insurance as an agent of foreign insurance companies.

Before liberalization the command economy including political instability had been the stumbling block for the growth of the financial sector in Ethiopia. The 1990's ushered in economic liberalization that led to the revival of private sector participation in the financial sector. This has led to the formation of a number of private insurance companies. According to the National Bank of Ethiopia (2010) there were 14 insurance companies with a total of 221 branches operating in the country. In terms of ownership, all insurance companies except the Ethiopian Insurance Corporation (EIC), are privately owned. Private insurance companies accounted for 69.5 percent of the total capital, while the remaining share was taken up by the single public owned enterprise, the Ethiopian Insurance Corporation. Of the total insurance branches, 50.7 percent are concentrated in Addis Ababa. Private insurance companies owned 81.4 percent of the total branches.

According to Gebreyes (2011) the insurance market is undeveloped, uncompetitive and there exist paucity of information on the kind of life insurance that is currently present. The current practice of bulk of insurance coverage and business in Ethiopia is targeting the corporate market and focuses mainly on general insurance with a very limited coverage in life insurance. The insurance sector is dependent on the banking sector for much of its new business. Most Ethiopian insurance companies have sister banks and its common for these banks to refer their clients to their sister insurance companies, but this is largely restricted to credit life insurance products. Moreover, insurance companies tend to derive a large portion of their total income from investments in banks (Smith and Chamberlain, 2009).

Continually, the modern insurance in Ethiopia was introduced at the beginning of the 20th century though the sector is one of the most underdeveloped (Hailu Zeleke, 2007, p: 41). According to the Indication of Hailu, (2007) the first significant event that the Ethiopian

insurance market observation was the issuance of proclamation No. 281/1970 and this proclamation was issued to provide for the control & regulation of insurance business in Ethiopia.

Ethiopian Insurance Corporation (EIC) was established in 1975 by the proclamation number 681/1975 and became the sole operator (That means the corporation came into existences by taking the entire asset and liabilities of thirteen nationalized private insurance companies) with Birr 11 million paid up capital aiming the following objectives:

- ✓ Engage in all classes of insurance business in Ethiopia.
- ✓ Ensure the insurance services reach the broad mass of the people.

Subject to the provision of Article 18 of the Housing and Saving Bank establishment proclamation 601/1975, promote efficient utilization of both materials and financial resources.

Ethiopian Insurance Corporation was operating the business for about nineteen years under protected monopolistic system as state owned-sole insurer. After the demise of the Marxist regime in mid-1991 a fundamental change has taken place and there was a shift in political, economic and social orientation from totalitarianism to that of liberalism. Therefore, EIC was reestablished as public enterprises under proclamation number 201/94 with Birr 61 million paid up capital.

Furthermore, after the change in the political environment in 1991, the proclamation for the licensing and supervision of insurance business heralded the beginning of a new era. Immediately after the enactment of the proclamation in the 1994; private insurance companies began to increase. Upon re-establishment of the corporation in 1994 as state owned enterprise, the law covers the following new objectives to the Corporation:

- ✓ Engage in the business of rendering insurance service; and
- ✓ Engage in any other related activities conducive to the attainment of its purposes.

Therefore, the life insurance department and division, is one of the major sections dealing with the provision of different types of life insurance policy including endowment, term, and whole life and other types to the market.

Most insurance companies in Ethiopia have sister banks and generate business by using them as a distribution channel. These banks often refer their customers to purchase life insurance policies from their sister insurers. Insurance company assets are highly exposed to the banking sector in Ethiopia and a minimal amount of industry returns are reinvested, which limits the scope to develop infrastructure, launch innovative products and develop new market opportunities

Generally, unlike the pre-reform practice, the pattern of financial intermediation has been largely geared towards the private sector as opposed to the public and cooperative sector. The people are

getting more confident of private financial enterprises through time. Private sector participation in the financial sector has facilitated the smooth implementation of the monetary and financial intermediation through the creation of competition by contributing to the development of the sector. Currently, seventeen (17) insurance companies were established and functioned in Ethiopia with a number of branches across the countries.

2.2 Theoretical Literature Review

This theoretical review part of the study is all about the review of the theories of capital structure and profitability or firm value.

2.2.1 Theory of Capital Structure and profitability

Determining optimal capital structure is one of the most important tasks to be fulfilled by financial managers. In fact the search for optimal capital structure has dominated the theory of capital structure. However, is there an optimal capital structure in reality? An optimal capital structure can be described as the best debt to equity ratio for the firm in which this will minimize the cost of financing and maximize the value of the firm. Thus financial managers should always choose between debt and equity financing which will be more beneficial to the company. Choosing on the best source of finance also related to the minimizing the tax liability of the company. This is due to the fact that in trade-off theory, interest on debt is tax-deductible which resulted to the lower cost of financing. However this is not always the case if the debt is used not in the production of gross income.

Capital structure theory attempts to explain the financial mix used to finance corporations and firms. Capital structure decisions are essential for business survival and prosperity. If misjudgment occurs related to important financing decisions, the consequences may be devastating, such as financial distress, bankruptcy, or even liquidation. The recommended textbook strategy that management should follow is to lower (or minimize) the Weighted Average Cost of Capital (WACC). This will lead to increased profitability and returns, which will eventually translate in increased shareholder wealth. In short, financing decisions are critical in maximizing the value of the firm.

The study of capital structure attempts to explain how listed firms utilize the mix of various forms of securities in order to finance investment. Modigliani and Miller (1958) demonstrated that capital structure is irrelevant under certain restrictive assumptions. Ever since then, many researchers have approached the study of corporate capital structure under less restrictive assumptions. This has led to the confirmation of an existence of the optimal choice of capital structure. Unfortunately, there has been little consensus among researchers on what the optimal

capital structure is. However, it is important to synthesize the literature on capital structure and where possible, to relate the literature to known empirical evidence.

Several studies have, however, confirmed the existence of an optimal debt-equity mix. This is based solely on the existence of market imperfections such as transaction and potential bankruptcy costs. For instance, Baumol and Malkiel (1967: 554) demonstrate by use of indifference curves that the introduction of transaction costs to the value irrelevance equation produces a disequilibrium, in which the shareholder seeks an optimal point in the mix of debt and equity.

2.2.1.1 The Modigliani-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 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.

There are two fundamentally different types of capital structure irrelevance propositions. The classic arbitrage-based irrelevance propositions provide settings in which arbitrage by investors keeps the value of the firm independent of its leverage. In addition to the original Modigliani and Miller paper, important contributions include papers by Hirshleifer (1966) and Stiglitz (1969). The second irrelevance proposition concludes that “given a firm’s investment policy, the dividend payout it chooses to follow will affect neither the current price of its shares nor the total return to its shareholders” (Miller and Modigliani, 1961). In other words, in perfect markets, neither capital structure choices nor dividend policy decisions matter.

A popular defense has been to argue as follows: “While the Modigliani-Miller theorem does not provide a realistic description of how firms finance their operations, it provides a means of finding reasons why financing may matter.” This description provides a reasonable interpretation of much of the theory of corporate finance. Accordingly, it influenced the early development of both the trade-off theory and the pecking order theory.

The leverage irrelevance theorem of MM is valid if the perfect market assumptions underlying their analysis are true. The real world, however, is characterized by various imperfections such

as existence of tax, bankruptcy costs, agency costs, and informational asymmetries, hence these imperfections led to the development of further studies in the area.

In their proposition I they considered the value of the firm to be independent of its CS. This proposition was more or less similar to that of the net operating income approach. They viewed the value of a firm as a function of expected operating income divided by the discount rate appropriate to its risk class, and proved that the average cost of capital within a given class is independent of the degree of LEV.

The proposition II held that financial leverage increases to expected earnings per share (EPS) while the share price remains constant. This is because the change in the expected earnings is offset by a corresponding change in the return required by the shareholders.

Their proposition III made an attempt to develop the Theory of Investment, wherein they concluded that an investment financed by common stock is advantageous to the current stockholders if and only if its yield exceeds the capitalization rate. When a corporate income tax, under which interest is a deductible expense, is considered, gain can accrue to stockholders from having debt in the CS, even when capital markets are perfect.

2.2.1.2 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. Thus, trade-off theory implies that company's CS decision involves a trade-off between the tax benefits of debt financing and the costs of financial distress. When firms adjust their CS, they tend to move toward a target debt ratio that is consistent with theories based on tradeoffs between the costs and benefits of debt.

Kraus and Litzenberger (1973) suggest the static trade-off theory in an imperfect capital market condition, using two assumptions, (1) bankruptcy costs and (2) tax shield. On the one hand, as the leverage ratio increases, a firm's value also increases because of the tax shield effect. On the other hand, the cost of capital increases as the gearing level rises by increasing the probability of bankruptcy. Contrary to Modigliani and Miller's (1963) proposition, the static trade-off theory asserts that bankruptcy costs overwhelm the tax shield when firms have too much debt. At least, from the empirical evidence, if a firm has too high a gearing level, the probability of bankruptcy increases rapidly. Thus, the firm selects its leverage level to obtain the lowest cost of capital (generally, minimizing its Weighted Average Cost of Capital (WACC)) to maximize firm value. Damodaran (1999) and Altman (1984) suggest that the optimum debt level is achieved when tax

shields and bankruptcy costs are the same; at which time the WACC is minimized (Ross et al., 1995).

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, 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. Several aspects of Myers' definition of the trade-off merit discussion. First, the target is not directly observable. It may be imputed from evidence, but that depends on adding a structure. Different papers add that structure in different ways.

Second, the tax code is much more complex than that assumed by the theory. Depending on which features of the tax code are included, different conclusions regarding the target can be reached. Graham (2003) provides a useful review of the literature on the tax effects. Third, bankruptcy costs must be deadweight costs rather than transfers from one claimant to another. The nature of these costs is important too. Haugen and Senbet (1978) provide a useful discussion of bankruptcy costs. Fourth, transaction costs must take a specific form for the analysis to work. For the adjustment to be gradual rather than abrupt, the marginal cost of adjusting must increase when the adjustment is larger. Leary and Roberts (2005) describe the implications of alternative adjustment cost assumptions.

2.2.1.2.1 Static trade-off theory

The static trade-off 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. 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. Already, this leads to a trade-off between the tax benefit and the disadvantage of higher risk of financial distress. But 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. Many other cost factors have been suggested under the trade-off theory, and it would lead to far to discuss them all. Therefore, this discussion ends with the assertion that an important prediction of the static trade-off theory is that firms target their capital structures, i.e. if the actual leverage ratio deviates from the optimal one, the firm will adapt its financing behavior in a way that brings the leverage ratio back to the optimal level.

2.2.1.2.2 The Dynamic Trade-off Theory

Implementing the role of time is very significant in identifying the optimal CS. 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.

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 precursor to modern dynamic trade-off theories was Stiglitz (1973), 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. Much of the work on dynamic trade-off models is fairly recent and so any judgments on their results must be somewhat tentative. This work has already fundamentally altered our understanding of mean

reversion, the role of profits, the role of retained earnings, and path dependence. As a result, the trade-off class of models now appears to be much more promising than it did even just a few years ago.

2.2.1.3 The pecking order theory

Donaldson (1961) followed by Myers (1984) suggests that management followed a preference ordering when it comes to financing. His work suggests that the costs of issuing risky debt or equity overwhelm the forces that determine optimal LEV in the trade-off model; the result is the pecking order. He also argued that the trade-off theory fails to predict the wide degree of cross-sectional and time variation of observed debt ratios. The pecking order theory is mainly a behavioral explanation of why certain companies finance the way they do. It is consistent with some rationale arguments, such as asymmetric information and signaling, as well as with flotation costs. Moreover, it is consistent with the observation that the most profitable companies within an industry tend to have the least amount of LEV.

The pecking order theory takes the signaling theory one step further by suggesting that the information costs are substantial enough to warrant managers to issue the security with the least information costs (Barclay & Smith, 1999: 13). This theory was originated by Myers and Majluf (1984: 188) who demonstrate that a share issue is generally perceived negatively by the investors. This is because managers tend to issue shares when they are overpriced. Stated in simple terms, the pecking order theory suggests that in order to avoid the information effects of new share issues, a firm is more likely to issue debt than equity. This prediction is conditional on the managers' belief that their firm's securities are underpriced.

The pecking order theory is mainly a behavioral explanation of why certain companies finance the way they do. It is consistent with some rationale arguments, such as asymmetric information and signaling, as well as with flotation costs. Moreover, it is consistent with the observation that the most profitable companies within an industry tend to have the least amount of leverage.

The pecking order theory implies that managers will follow the path of least resistance, and that they will work down a pecking order by opting to issue the cheapest form of financing. In this case, firms will opt for retained earnings as it has no adverse selection problems. When retained earnings are exhausted, the firm can then issue debt. When it does not make any more sense to issue more debt, equity can be issued as a financing source of last resort.

The pecking order theory suggests that firms with few investment opportunities and high free cash flows will have low debt ratios. Conversely, high growth firms with low free cash flows will have high debt ratios. A number of studies have confirmed the existence of the pecking order theory. Rajan and Zingales (1995: 1454) utilize a data set from seven industrialized

countries, and they find some evidence for the pecking order theory in the form of a negative association between leverage and profitability. From the facts discussed, it appears that the evidence on the pecking order theory is mixed, mainly because of the methodology used and that financing decisions are subject to a number of factors that may influence capital structure differently.

2.2.1.4 The Market timing theory

It is well known that firms are more likely to issue equity when their market values are high, relative to book and past market values, and to repurchase equity when their market values are low. IN CORPORATE FINANCE, “equity market timing” refers to the practice of issuing shares at high prices and repurchasing at low prices. The intention is to exploit temporary fluctuations in the cost of equity relative to the cost of other forms of capital. In the efficient and integrated capital markets studied by Modigliani and Miller by 1958, the costs of different forms of capital do not vary independently, so there is no gain from opportunistically switching between equity and debt. In capital markets that are inefficient or segmented, by contrast, market timing benefits ongoing shareholders at the expense of entering and exiting ones. Managers thus have incentives to time the market if they think it is possible and if they care more about ongoing shareholders.

In practice, equity market timing appears to be an important aspect of real corporate financial policy. There is evidence for market timing in four different kinds of studies. First, analyses of actual financing decisions show that firms tend to issue equity instead of debt when market value is high, relative to book value and past market values, and tend to repurchase equity when market value is low. Second, analyses of long-run stock returns following corporate finance decisions suggest that equity market timing is successful on average. Firms issue equity when the cost of equity is relatively low and repurchase equity when the cost is relatively high. Third, analyses of earnings forecasts and realizations around equity issues suggest that firms tend to issue equity at times when investors are rather too enthusiastic about earnings prospects. Fourth, and perhaps most convincing, managers admit to market timing in anonymous surveys.

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 firm’s 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.

2.2.1.5 The signaling theory

The signaling theory emanates from information asymmetries between firm management and shareholders. If managers believe that their firms are undervalued, they will issue debt first and then issue equity as a last resort. Conversely, if management believes that their firm is overvalued, they will issue equity first. The signaling theory was first coined by Ross (1977: 23) who posits that if managers have inside information, their choice of capital structure will signal information to the market. Leverage may well be influenced by the theoretical premise that increases in debt are a positive sign that managers are confident about future earnings. Debt contracts are a commitment by managers to make future interest payments. Failure to repay debt could lead to bankruptcy. This signals confidence to the market that the firm will have sufficient cash flows to service debt.

The shareholders of a firm are the residual claimants to the firm's cash flows. This is because promised interest payments are an obligation and have priority over dividends. As a consequence, share prices are more sensitive to financial structure announcements than bond prices. If managers are optimistic about their firm's future prospects, the firm's share price will appear more undervalued than bond prices.

Noting the inconsistency between trade-off theory and the observed pecking order of financing, Myers and Majluf (1984)⁴² proposed a new theory, called the signaling, or asymmetric information theory of CS. They demonstrated that with asymmetric information, equity issues are rationally interpreted on average as bad news, since managers are motivated to make issues when the stock is overpriced. Ross's (1977) model suggests that the value of firms will rise with LEV, since increasing LEV increases the market's perception of value. Asquith and Mullins (1983), Masulis and Korwar (1986), and Mikkelson and Partch (1986) also empirically observed that announcements of new equity issues are greeted by sharp declines in stock prices. This is a major reason why equity issues are comparatively rare among large established corporations. Debt also plays an important role in allowing investors to generate information useful for

monitoring management and implementing efficient operating decisions Harris and Raviv (1990).

The implication of the signaling theory is that corporate managers will attempt to time equity issues based on the market's assessment of their shares. For example, Baker and Wurgler (2002: 1) report a strong relationship between firm financing decisions and historical market values of equity. In essence, the capital structure of a firm is the cumulative result of corporate managers' past attempts to time the market. However, Brounen *et al.* (2006: 1435) do not find any evidence to suggest that European managers signal their private information to influence capital structure. The evidence provided thus far suggests that, on average, the signaling theory holds.

2.3 Empirical studies on determinant of capital structure

After introduction by Modigliani and Miller on their seminal paper on capital structure, there are quite a number of researches directed towards determinants of capital structure. Initially the researches on the capital structure were started on the United States firms. One of the classical researches was carried out by Titman and Wessals (1988) and they studied the theoretical determinants of capital structure by examining them empirically. The theoretical attributes namely; asset structure, non-debt tax shields, growth, uniqueness, industry classification, firm size, earnings volatility and profitability were tested to see how they affect the firm's debt-equity choice. In their research, Titman and Wessals used six measures of financial leverage that includes long-term, short-term and convertible debt divided by market and by book values of equity.

Relatively little research work on firms' financing decision has been done in developing countries (Shah and Khan, 2007). The main difference between developing and developed world is that in developed world firms finance their leverage with long term debt and short term debt is mainly contributing in leverage of firms in developing world (Booth et al 2001).

As of the Conclusion of many researchers with except Myers, The factors affecting the developed countries also explain the capital structure decisions in the developing nations. Myers concluded that the decision of capital structure of the developing nations were different from the decision of capital structure in developed country. According to him, two major drawbacks found in most research which includes poor cross-sectional variation in samples and sample selection bias. In 1999, Liu conducted a study on determinants of corporate capital structure from companies listed in China between 1992 and 1997. Using the Ordinary least square (OLS) regression, the long term debt ratio was examined to see whether there were any relationship with industry classifications, Profitability, proportion of the tangible asset, firm size, growth rate of assets and ownership concentration. The results indicated that debt ratio are positively related to firm size, asset tangibility and growth rate and negatively related to ownership structure. Liu

(2007) examined the determinants of capital structure of Chinese manufacturing companies to see which model of capital structure fits well with Chinese corporations.

In 2000, Chen another studies, conducted an empirical investigation of the association between firm characteristic and the capital structure decision in high technology companies. For the purpose of the study, He examined 17 high technology industries in Taiwan. High technology companies were studied as they are in financial environment that cannot be reflected by its characteristics such as rapid growth, competition, technological innovation and Research and Development (R&D). Among of the Variable that examined by Him include managerial ownership, growth opportunities, R&D costs, firm size, earnings variability, profitability, cost variability, depreciation tax shield, cash flow variability, corporate tax shield and dividend payment; The results indicated that firm size, corporate tax, R &D costs, earnings variability and cost variability were positively related to leverage. The positive sign for corporate tax was a surprise result as it was predicted to be negative. The other factors appeared insignificant in the study.

From the analysis, it is interesting to note that firms with large size depend more on the long-term borrowing while the small firms depend more on short-term borrowings. Firms with high growth opportunities would like to increase their long-term debt taking capacity. It is also proven from the study that when the firms have more unique products it will be difficult for them to borrow. The measure of profitability or cash flow factor seemed to be significant for the short-term and total borrowings but not for long-term borrowing. The asset structure turn out to be surprising as it showed that there was no association between share of fixed assets and short-term borrowings as theory recommends that they do with collateral argument.

Even though, many theory and empirical research are studied in a number of developed nations, there were a few researches directed towards to developing countries that applicability of the theories of capital structure derived from the developed nations. Mayer (1990), Singh (1995), Cheran (1996), Cobham and Subramanian (1998) were among the scholars who have studied the capital structure issue in developing countries. One of the recent empirical studies on determining the factors affecting capital structure in developing countries have been attempted by Booth et al. (2001). In his study, a sample consisting of 10 developing countries were analyzed and found that, the variables that explain the capital structures in developed nations are also relevant in the developing countries irrespective of differences in institutional factors across these developing nations.

However, there were very few studies in Ethiopia, which relates to Capital structure determinants. Ashenafi (2005) on the title of "Small and Medium enterprises: a case study in Addis Ababa" by Covering the Period between 1991 and 1996 E.C.; In his study he has tested

seven firm-specific independent variables including: other fiscal benefits, economic risk, size of the firm, age of the firm, asset composition, profitability and growth opportunity of the firm.

Amanuel, (2012) , on the title "Determinants of Capital Structure: a case of Addis Ababa Manufacturing firms" and found that variables like assets tangibility, non-debt tax shield, earning volatility, profitability and size of the firms are the significant determinants of capital structure.

Kinde, (2012) on the title "Determinants of capital structure by taking Ethiopian Insurance Company" and result shows that firm specific variables including growth opportunity of the firm, profitability, business risk, liquidity and age of the firm have statistically significant influence on capital structure of Ethiopian Insurance Companies.

Furthermore, from empirical studies in the banking sector of Ethiopia Weldemikael (2012) examined the relationship between leverage and firm specific (profitability, tangibility, growth, risk, size and liquidity) determinants of capital structure decision, and the theories of capital structure that can explain the capital structure of banks in Ethiopia using a mixed method research approach by combining documentary analysis and in-depth interviews. More specifically, the study used twelve years (2000 - 2011) data for eight banks in Ethiopia. The findings revealed that profitability, size; tangibility and liquidity of the banks are important determinants of capital structure of banks in Ethiopia. However, growth and risk of banks are found to have no statistically significant impact on the capital structure of banks in Ethiopia. In addition, based on the results of the analysis the Author indicated that pecking order theory is pertinent theory in Ethiopian banking industry, whereas there are little evidence to support static trade-off theory and the agency cost theory. Hence, the author recommended banks to give due consideration to profitability, size, liquidity and tangibility in their determination of optimum capital structure.

On the other hand, Amdemikael (2012) also assessed the factors that affect bank profitability in Ethiopia covering the period of 2000-2011. Mixed research approach (data obtained through the structured document reviews and in-depth interviews) were applied. The analysis also managed through the multiple linear regressions model, OLS. The dependent variable was ROA as a single measure of profitability and it was measured as net profit before tax divided by total assets. The independent variables includes; equity-to-total asset ratio (the inverse of the leverage ratio), Operational efficiency, Income diversification, Liquidity risk, Asset Quality, Real GDP growth and Inflation. The result indicated that capital strength is one of the main determinants of profitability of banks in Ethiopia.

In 2015 Daniel 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. 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.

In 2016 Dr. D. Guruswamy In his study, Determinants of Capital Structure of Selected Insurance Companies in Ethiopia try to use one dependent variable (leverage) and nine independent variables, i.e. growth opportunities, business risk, size of the firm, tangibility of assets, liquidity, age, management efficiency, inflation and GDP was employed. Explanatory research design and purposive sampling method was employed in this study. The balanced panel data was analyzed by using descriptive, correlation and multiple regression analysis. From the regression results; age, business risk, firm growth, management efficiency, economic growth rate, and inflation are identified as the most important determinant factors of capital structure. Age, business risk, management efficiency, economic growth rate and inflation are positively related with capital structure; but, firm growth has negative relation with capital structure. However, liquidity, size and tangibility of assets had insignificant impact on capital structure.

Generally, when compare our country (ETHIOPIA) with developed countries as well as other developing countries; the researcher understands as the lack of such study or lack of the literature of capital structure in Ethiopia. So that, lack of such studies in Ethiopia motivated the researcher to this study.

The main purpose of this research is to investigate the determinants of capital structure of Ethiopian Insurance Companies. This study attempted to reduce the gap or fills the research gap by providing information about capital structure with its determinants by standing on the previous researchers' evidence.

Besides, the study attempts to determine how firms choose their capital structure, while Consider many significant factors that might affect it in order to achieve their primary objective like: maximizing value and shareholders wealth, Overcomes the conflict of interest between its shareholders and managers of the Company. The researcher's particular goal here is to investigate the capital structure determinants III the context of the Ethiopian Insurance companies.

2.4 Variables summary & Conceptual framework

2.4.1 Dependent Variables

To see the impacts of capital structure determinants on the firm profitability the researcher uses one accounting based measurements of financial performance as dependent variables, which is Return on Asset (ROA) to determine the firm specific factors on profitability of the firm.

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. Calculated by dividing a company's annual earnings by its total assets, ROA is displayed as a percentage. Sometimes this is referred to as "return on investment".

The assets of the company are comprised of both debt and equity. Both of these types of financing are used to fund the operations of the company. The ROA figure gives investors an idea of how effectively the company is converting the money it has to invest into net income. The higher the ROA number, the better, because the company is earning more money on less investment. For example, if one company has a net income of \$1 million and total assets of \$5 million, its ROA is 20%; however, if another company earns the same amount but has total assets of \$10 million, it has an ROA of 10%. Based on this example, the first company is better at converting its investment into profit. When you really think about it, management's most important job is to make wise choices in allocating its resources. Anybody can make a profit by throwing a ton of money at a problem, but very few managers excel at making large profits with little investment.

Return on assets (ROA) is a financial **ratio** that shows the percentage of profit a company earns in relation to its overall resources. It is commonly defined as net income divided by total **assets**. Net income is derived from the income statement of the company and is the profit after taxes.

The profit percentage of assets varies by industry, but in general, the higher the ROA the better. For this reason it is often more effective to compare a company's ROA to that of other companies in the same industry or against its own ROA figures from previous periods. Falling ROA is almost always a problem, but investors and analysts should bear in mind that the ROA does not account for outstanding liabilities and may indicate a higher profit level than actually derived.

2.4.2 Independent Variables

The purpose of this study is to examine the impact of capital structure on the performance of Ethiopian insurance industry the following independent variables are discussed in this section.

Firm leverage

Financial leverage is one of the key elements of the capital structure of most of the firms which may be taken as an opportunity to maximize the shareholders' wealth. However, if not used with care, this choice may result in bankruptcy endangering the survival of the firm. On the positive side, the use of financial leverage can act as a control for managers to prudently use the financial resources and to pay obligations on time. Thus, the managers tend to act in line with the shareholders' interests as failing to do so may call for their replacement by the new managers. This may also strengthen the principal and agent relationship in view of the agency theory.

Leverage is the investment strategy of using borrowed money: specifically, the use of various financial instruments or borrowed capital to increase the potential return of an investment. Leverage can also refer to the amount of debt used to finance assets. When one refers to something (a company, a property or an investment) as "highly leveraged," it means that item has more debt than equity.

Firm size

Size has been identified as an important determinant of firm's capital structure. Larger firms tend to be more diversified and hence have lower variances of earnings making them able to tolerate high debt ratio (Castanias, 1983; Titman & Wessels, 1988). Smaller firms may find it relatively more costly to resolve information asymmetries with lenders, thus, may present lower debt ratio (Castanias, 1983). According to Rajan & Zingales (1995), "Larger firms tend to be more diversified and fail less often, so size may be an inverse proxy for the probability of bankruptcy. If so, size should have a positive impact on the supply debt. However, size may also be a proxy for the information outside investors have, which should increase their preference for equity relative to debt."

Firm performance can be measured in different ways and by applying different methods; however, one of the most widely applied methods refers to financial analyses that use profitability ratios as key measures of firm's overall efficiency and performance. Although a great number of theories tried to explain the reasons why some firms are more profitable than others, and numerous studies investigated different variables that may influence firm performance, the issue of firm business success continues to be an inexhaustible subject that draws attention of many practitioners and researchers.

In this research I use firm size as one variable to evaluate its influence on firm profitability. Underlying theoretical basis for arguing that a firm size is related to profitability can be found in the traditional neoclassical view of the firm and the concept known as economies of scale. Economies of scale may occur for various reasons such as financial (a large firm can get a better interest rate and also a better discount rate due to a large quantity that it buys); organizational reason (specialization and division of labor); technical reason (division of high fixed costs across large number of units) etc. In line with this concept, a positive relationship between firm size and profitability is expected.

Liquidity

Research has shown that there exist a correlation between the firm's liquidity and the optimal capital structure of the firm. Liquidity is the firm's ability to meet its short term obligations as they become due. The more the liquid firm, the more able it is to pay off interest on debt. Fama and French (2002) found a positive relationship of liquidity with leverage. It states that firm with high liquidity should option debt as major contributor to the capital structure as firm can easily pay off the debt. Conversely, Tong and Green (2005) concluded that there is a negative correlation between liquidity and leverage. A number of researchers recommended that, highly liquid firm should use internally generated funds (Deesomsak et al., 2004; Mazur, 2007; Viviani, 2008). Bankruptcy analysts use liquidity ratios to find out the likelihood that a company would be able to continue to service its debts and to stay in business.

Asset tangibility

Tangible assets are one of the key drivers for explaining the capital structure within firms. The impact of a firm's composition of assets and how they explain its capital structure is an ongoing debate. Tangible assets are generally more liquid than intangible assets. Therefore, tangible assets have a higher second market value, and in case of bankruptcy these could be quickly and easily sold. Furthermore, ownership of tangible assets should give companies with such assets an increased debt capacity.

Modigliani and Millers proposition from 1958 laid the foundation for modern corporate finance. Since then, several theories have developed; two of these are the trade-off- and pecking order theory. The trade-off- and pecking order theory are contradicting each other concerning if tangible assets have a positive or negative effect on debt level. The first mentioned theory predicts a positive relationship, while the second predicts a negative.

The asset tangibility of a firm plays an important role in determining its capital structure. The degree to which the firm's assets are tangible should result in the firm having greater liquidation value (Harris & Raviv, 1991; Titman & Wessels, 1988). Bradley et al., (1984), assert that firms that invest heavily in tangible assets tend to have higher financial leverage since they borrow at lower interest rates if their debt is secured with such assets. Therefore, firms who have assets of

greater liquidation value are more likely to access debt at lower cost hence high debt ratio in their capital structure. Tangibility is defined as total fixed assets to total assets. Gross fixed assets are defined as the sum of total lands and buildings, plant machinery and equipment, and other fixed assets (Fattouh, Scaramozzino, & Harris 2005).

Growth

According to the pecking order theory, growing firms look out for external funds to finance the growth. This is as a result of exhausting the internally generated funds. Firms with a higher proportion of their market value accounted for by growth opportunity will have debt capacity. Myers (1977) and Auerbach (1985) also argue that leverage is inversely related to growth rate because the tax deductibility of interest payments is less valuable to fast growing firms since they usually have non-debt tax shields. Michaelas et al., (1999) found future growth positively related to leverage and long-term debt.

Fama and French (2002) recommended that, firms which have more growth opportunities are likely to borrow fewer funds. While the firms that have less growth opportunities tend to borrow more funds, as growth opportunities are intangible asset and cannot be used as collateral. The signaling theory states that the firms that have more growth opportunities and more future earnings should use more leverage, as they will be in a position to pay off the interest.

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

$$\text{Assets growth} = \frac{(\text{Assets of current year} - \text{Assets of previous year})}{\text{Assets of previous year}}$$

Conceptual Frame Work

The following conceptual model is formulated to illustrate the determinant of capital structure and its impact on the profitability firm figure below shows.



The above diagram shows the firm determinants of capital structure (independent variable) and profitability of the firm (ROA) as dependent variable.

2.5 Summary of variable and measurements

The description of each variable and their expected signs are given below in the following tables.

Table 2.1 variable summary

Variables	Variable Measurements	Expected Signs
Firm Leverage	<u>Total liability</u> Total Asset	(-)
Growth Opportunity	Change in the Total asset	(+)
Firm Size	Natural logarithm of total assets	(+)
Liquidity	<u>Current asset</u> Current Liability	(+)
Tangibility of asset	<u>Total fixed Asset</u> Total Asset	(+)
Dependent Variable	Measurement	
Return on Asset	<u>Profit After Tax</u> Total Asset	

Chapter 3: Research Design and methodology

3.1 Introduction

The research method is a strategy of enquiry, which moves from the underlying assumptions to research design, and data collection (Myers, 2009). Although there are other distinctions in the research modes, the most common classification of research methods is into qualitative and quantitative. At one level, qualitative and quantitative refer to distinctions about the nature of knowledge: how one understands the world and the ultimate purpose of the research. On another level of discourse, the terms refer to research methods, that is, the way in which data are collected and analyzed, and the type of generalizations and representations derived from the data.

As it is indicated in the title, this chapter includes the research methodology. In more details, in this part the researcher outlines the research strategy, the research method, the research approach, and the methods of data collection, the selection of the sample, the research process and the type of data analysis.

3.2 Research Approach

Depending on the nature of the research problem and the research perspectives, a research Approach could be classified as quantitative approach, qualitative approach and mixed approach (Creswell, 2003). As noted in Creswell (2003), quantitative research employs a review of the existing literature to deductively develop theories and hypotheses to be tested i.e., in this approach, the research problem is translated to specific variables and hypotheses. Quantitative research approach tends to assume that there is the cause and effect relationship between known variables. In line with this, quantitative research approach tests the theoretically established relationship between variables by using sample data with the intention of statistically generalizing for the population under investigation and it uses statistical methods in describing patterns of behavior.

Similarly, Creswell (2003) describes the qualitative research approach as it uses to provide an understanding of social reality based on the subjective interpretation. Other types of the research were mixed research approach. This approach that seeks a practical knowledge claim philosophy that consists of both quantitative and qualitative approaches.

In general the choice among the three research approaches is guided by mainly the research problem apart from the underlying philosophy of each research method (Me. Ker-char, 2008, cited in Yesgat (2009)). That is, whether the research problem is based on the frameworks developed deductively through a review of the literature and prefigured information to be collected in advance of the study or to allow it to emerge from participants in the project or to both.

Thus, among the three listed research approach; the researcher employed quantitative research approach to investigate the impact of capital structure determinant on firm performance of Ethiopian Insurance Companies in order to achieve the stated objectives and the research perspectives. The quantitative research approach is used to translate the research problem in to specific variables and hypothesis.

3.3 Research Methodology

Crotty (1998) defined research methodology as: The strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes.

In this study, the researcher try to use analytical techniques include the use of descriptive statistics and an econometric techniques of Panel data model. Regression analysis is used to investigate the relationship between firms' capital structure indicator and profitability. Particularly, the researcher tries to use Random-effect regression model to analyze the relationship between dependent variable (ROA) and independent variables (Leverage, growth, firm size, assets tangibility, and liquidity).

3.4 Data Type and Data Source

The researchers were collected quantitative type of data as a secondary data from the annual reports of selected insurance companies in Ethiopia, National Bank of Ethiopia (NBE). The secondary data includes balance sheet, income statements and relevant statistical data's. Secondary data can have advantage of saving time that would otherwise be spent collecting data and, particularly in the case of quantitative data, can provide larger and higher-quality databases that would be unfeasible for any individual researcher to collect on their own.

3.5 Target Population and Sample Size

The target population of this study consists of all Ethiopian insurance companies. According to the reports of National Bank of Ethiopia, currently seventeen insurance companies are working in Ethiopia. Due to the researchers' intention to provide the reliable and most up-to-date result, the length of time in this study was ten years from 2007-2016. Therefore the researchers would use Purposive sampling in this study to select the sample. Accordingly, based on age, the researchers' were selected nine insurance companies in the study.

Table 3.1 List of insurance companies

NO	Name of Insurance Company	Year of Establishment
1	ETHIOPIAN INSURANCE CORPORATION	1975
2	NATIONAL INSURANCE COMPANY OF ETHIOPIA (NICE)	1994
3	AWASH INSURANCE COMPANY	1994
4	AFRICA INSURANCE COMPANY	1994
5	NILE INSURANCE COMPANY	1995
6	NYALA INSURANCE COMPANY	1995
7	UNITED INSURANCE COMPANY	1997
8	GLOBAL INSURANCE COMPANY	1997
9	NIB INSURANCE COMPANY	2002
10	LION INSURANCE COMPANY	2007
11	ETHIO-LIFE INSURANCE S.C	2008
12	OROMIA INSURANCE COMPANY	2009
13	ABAY INSURANCE COMPANY	2010
14	BERHAN INSURANCE S.C	2011
15	TSEHAY INSURANCE S.C	2012
16	LUCY INSURANCE S.C	2012
17	BUNNA INSURANCE S.C	2013

3.6 Data Collection Instrument

This paper is based on secondary data collection. The sources of data for this study are Balance sheets and Income Statements of companies over 10 years period from 2007 to 2016, which are mainly extracted from National Bank of Ethiopia, which can provide comprehensive database for all insurance companies.

3.7 Data Analysis Techniques

The researchers' would use the balanced panel of nine insurance companies in Ethiopia operating over the last Ten years for running the regression equation. This study used econometric model to measure the impact of capital structure determinants on firm performance 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).

3.8 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;

$$Y_{i,t} = \beta_0 + \beta_{xi,t} + \epsilon_{i,t}$$

The subscript **i** representing the cross-sectional dimension and **t** denote the time-series dimension. The left hand side equation, represent the dependent variable in the model, which is the firm's **return on asset**. In the right side, represent the **set of independent variables** in the estimated model.

Model

Their impacts on firm performance

$$ROA = \beta_0 - \beta_1(LV_{it}) + \beta_2(LIQ_{it}) + \beta_4(TN_{it}) + \beta_5(GR_{it}) + \beta_6(AZ_{it}) + \epsilon$$

Where;

ROA = Return on Asset

LV = Leverage

LIQ = Liquidity

TN = Asset tangibility

GR = Growth

AZ = Firm size

Chapter four: Data analysis and interpretation

4.1. Descriptive statistics

This section presents researcher main findings of the determinants of capital structure and its impact on the performance in the context of Ethiopian insurance industry as well as this chapter analysis and discussion of the results in comparison to the theories and earlier empirical results discussed and presented in previous chapters by using classical linear assumption and model specifications.

This study used Return on asset (ROA) as dependent variable for measuring firm's performance while independent variables includes firm leverage, growth, tangibility of fixed assets, liquidity and size of the firm. It also presents the results of panel data regression analysis results, data taken from balance sheets and income statements in Ethiopian insurance industry.

Table 4.1 descriptive stastics

Variable	Obs	Mean	Std.Dev.	Min	Max
ROA	90	.0821422	.041219	.0028	.3736
Leverage	90	.6798278	.0859435	.4467	.8267
LIQ	90	.9878044	.2109203	.2626	1.632
Growth	90	.2741100	.2218861	.0171	.9859
Size	90	17.63785	.9709129	15.7261	19.3438
TAN	90	.1858311	.115745	.0387	.5417

** Source computed from financial statement of insurance company, generated from stata*

As presented in table 4.1, the average value of the performance ratios measured by ROA, sample Ethiopian insurance industry is 8.2 percent (0.0821422), this implies sample Ethiopian insurance companies on average earned a net income of 8.2 percent of total asset with a maximum and minimum value of 0.3736 and 0.0028 respectively. The standard deviation is 4.7 percent from the average value, which reflects the presence of moderate variation among the sampled insurance companies.

On the other hand, the average value of the sample insurance company's leverage is 67.9 percent (Mean=0.6798278) which measured by total debt over total asset this reflects this companies operates with significant level of leverage and the maximum and minimum value of 82.6 and 44.6 percent respectively. It deviates by 8.6 percent from the mean value of the sample of Ethiopian insurance companies. The amount of mean and standard deviation of tangibility of asset in Ethiopian insurance companies has the value of 0.1858311 and 0.115745 respectively. This implies the sample period of Ethiopian insurance companies on average generate revenue from fixed asset 18.5% while the variation among the sampled insurance companies is low. On the other hand the maximum amount of revenues generated by insurance companies from fixed asset is 54.17percent whereas the minimum is 3.8percent.

The mean value of liquidity is 0.9878044 which indicate the amount of cash generated from current assets is 0.9878044percent with maximum and minimum value 1.632 and 0.2626 respectively. It deviates by 0.2109203 from the mean value of the sample across Ethiopian insurance companies.

The growth opportunities of the sample Ethiopian insurance companies on average is 27.41 percent (mean=0.27411) as measured by annual change of total asset. The maximum value of annual change of total asset among the sample Ethiopian insurance companies is 98.59percent and the minimum value is 1.7percent.It shows a standard deviation of 22.19percent from the mean value.

Lastly table 4.1 above shows that the average size of the sample Ethiopian insurance companies is 176 percent (mean =17.63785) which implies control variable measured by natural log of total asset which indicates very important for a company to be large in order to have superior performance. A maximum and a minimum value of size is 19.3438 and 15.7261 respectively. The standard deviation indicates that for the sample of Ethiopian insurance companies is 0.9709 suggests that there is moderate dispersion in the mean value of sample Ethiopian insurance companies.

4.1.1 Pearson correlation matrix:

The correlation between two variables measures the degree of linear association between them. If it is stated that y and x are correlated, it means that y and x are being treated in a completely symmetrical way. Thus, it is not implied that changes in x cause changes in y, or indeed that changes in y cause changes in x. rather, it is simply stated that there is evidence for a linear relationship between the two variables, and that movements in the two are on average related to an extent given by the correlation coefficient.

According to **BROOKS (2014)** an implicit assumption that is made when using the OLS estimation method is that the explanatory variables are not correlated with one another. If there is no relationship between the explanatory variables, they would be said to be orthogonal to one another. If the explanatory variables were orthogonal to one another, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change. In any practical context, the correlation between explanatory variables will be non-zero, although this will generally be relatively benign in the sense that a small degree of association between explanatory variables will almost always occur but will not cause too much loss of precision. However, a problem occurs when the explanatory variables are very highly correlated with each other, and this problem is known as multicollinearity. Correlation coefficient between two variables ranges from +1, (i.e. perfect positive relationship) to -1 (i.e. perfect negative relationship).It also defined as dependence of one variable upon another.

Table 4.2 correlation matrix for insurance companies

	ROA	LEV	LIQ	GROWT H	SIZE	TAN
ROA	1.0000					
LEV	-0.1329	1.0000				
LIQ	0.3127	-0.3481	1.0000			
GROWTH	0.1474	-0.1706	0.2633	1.0000		
SIZE	0.1345	0.1181	-0.4095	-0.4412	1.0000	
TAN	-0.2513	-0.3789	-0.4772	-0.1312	0.2892	1.0000

**Source financial statement of sample insurance company's computed by stata*

ROA was negatively correlated with leverage and tangibility for the coefficient estimates of correlation -0.1329 and -0.2513 respectively. While liquidity, growth and size of the firm have positive correlation with the firm's performance (ROA) of Ethiopian insurance companies for the coefficient 0.3127, 0.1474, and 0.1345 respectively.

As we can see from the table 4.2, when leverage and tangibility of asset increases, the performance of Ethiopian insurance industry decreases on the other hand when liquidity of firm, growth, and size of the firm increases the performance (measured by ROA) of the sampled Ethiopian insurance industry also increase. The highest correlation is indicated between liquidity and Return on asset as 0.31 approximately according to above table 4.2.

4.2 Tests for the Classical Linear Regression Model (CLRM) assumptions

Relating to the classical linear regression model (CLRM) five assumptions were made. These were required to show that the estimation technique, ordinary least squares (OLS), had a number of desirable properties, and also so that hypothesis tests regarding the coefficient estimates could validly be conducted.

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

The first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated (Brooks). The regression model used in this study included a constant term there for this assumption will not be violated.

4.2.2 Homoscedasticity (variance of the errors is constant ($\text{Var}(u_t) = \sigma^2 < \infty$))

It has been assumed thus far that the variance of the errors is constant, σ^2 – this is known as the assumption of **homoscedasticity**. If the errors do not have a constant variance, they are said to be **heteroscedastic**.

In Breusch-Pagan / Cook-Weisberg test for heteroskedasticity, tests the null hypothesis that the error variance are all equal versus the alternative that the error variance are a multiplicative function of one or more variables.

Table 4.3: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Variables: fitted values of FDI	
chi2(1)	= 0.02
Prob > chi2	= 0.4389

Breusch-Pagan / Cook-Weisberg test the null hypothesis that the error variance are all equal versus the alternative that the error variance are a multiplicative function of one or more variables. For example, in the default form of the **hettest** command shown above the alternative hypothesis state that the error variance increase or decrease as the predicted value of Y increase. A large chi-square would indicate that heteroskedasticity was present. In this data the chi-square value is small, indicating heteroskedasticity was probably not a problem.

4.2.3 Unit root test

Stata implements a variety of tests for unit root or stationary in panel datasets with `xtunitroot`. The assorted test makes different asymptotic assumption regarding the number of panels in your dataset and the number of time period in each panel.

Unit root test closely linked to serial correlation tests. However, while all processes with a unit root will exhibit serial correlation, not all serially correlated time series will have a unit root.

Panel unit root testing emerged from time series unit root testing. The major difference to time series testing of unit roots is that we have to consider asymptotic behavior of the time-series dimension T and the cross-sectional dimension N. The way in which N and T converge to

infinity is critical if one wants to determine the asymptotic behavior of estimators and tests used for non-stationary panels.

Individual unit root tests have limited power. The power of a test is the probability of rejecting the null when it is false and the null hypothesis is unit root. It follows that we find too many unit roots.

Levin-Lin-Chu Test (LLC) suggest the following hypotheses

H0: each time series contains a unit root

H1: each time series is stationary

where the lag order p is permitted to vary across individuals.

Levin-Lin-Chu unit-root test for leverage

Ho: panel contain unit roots Number of panel = 9

Ha: panels are stationary Number of period = 10

Ar parameter : common Asymptotics : $N/T \rightarrow 0$

Panel means : include

Time trend : not included

ADF regressions: 1 lag

LR variance : Bartlett kernel, 6.00 lags average (chosen by LLC)

Table 4.4 unit root test for leverage

	Statistic	p-value
Unadjusted t	-5.3477	
Adjusted t*	-1.1103	0.1334

*source financial statement of insurance companies computed by stata

The LLC bias-adjusted test statistic $t^* = -1.1103$ is significantly less than zero so we reject the null hypothesis of unit root therefore leverage is stationary.

Levin-Lin-Chu unit-root test for liq

Ho: panel contain unit roots Number of panel = 9

Ha: panels are stationary Number of period = 10

Ar parameter : common Asymptotics : $N/T \rightarrow 0$

Panel means : include

Time trend : not included

ADF regressions: 1 lag

LR variance : Bartlett kernel, 6.00 lags average (chosen by LLC)

Table 4.5 unit root test for liquidity

	Statistic	p-value
Unadjusted t	-3.5126	
Adjusted t*	-0.2887	0.3864

*source financial statement of insurance companies computed by stata

The LLC bias-adjusted test statistic $t^* = -1.1103$ is significantly less than zero so we reject the null hypothesis of unit root therefore liquidity is stationary.

Levin-Lin-Chu unit-root test for Growth

Ho: panel contain unit roots Number of panel = 9
 Ha: panels are stationary Number of period = 10

Ar parameter : common Asymptotics : N/T --- 0
 Panel means : include
 Time trend : not included
 ADF regressions: 1 lag
 LR variance : Bartlett kernel, 6.00 lags average (chosen by LLC)

Table 4.6 unit root test for growth

	Statistic	p-value
Unadjusted t	-8.4954	
Adjusted t*	-0.6020	0.0046

*source financial statement of insurance companies computed by stata

The LLC bias-adjusted test statistic $t^* = -1.1103$ is significantly less than zero so we reject the null hypothesis of unit root therefore growth is stationary.

Levin-Lin-Chu unit-root test for Size

Ho: panel contain unit roots Number of panel = 9
 Ha: panels are **stationary** Number of period = 10

Ar parameter : common Asymptotics : N/T --- 0
 Panel means : include
 Time trend : not included
 ADF regressions: 1 lag
 LR variance : Bartlett kernel, 6.00 lags average (chosen by LLC)

Table 4.7 unit root test for size

	Statistic	p-value
Unadjusted t	-4.4970	
Adjusted t*	-3.9718	0.0000

*source financial statement of insurance companies computed by stata

The LLC bias-adjusted test statistic $t^* = -1.1103$ is significantly less than zero so we reject the null hypothesis of unit root therefore size is stationary.

Levin-Lin-Chu unit-root test for tan

Ho: panel contain unit roots Number of panel = 9
 Ha: panels are stationary Number of period = 10

Ar parameter : common Asymptotics : N/T --- 0
 Panel means : include
 Time trend : not included
 ADF regressions: 1 lag
 LR variance : Bartlett kernel, 6.00 lags average (chosen by LLC)

Table 4.8 unit root test for asset tangibility

	Statistic	p-value
Unadjusted t	-4.5371	
Adjusted t*	-3.5848	0.0002

*source financial statement of insurance companies computed by stata

The LLC bias-adjusted test statistic $t^* = -1.1103$ is significantly less than zero so we reject the null hypothesis of unit root therefore tangibility is stationary.

4.2.4 Multicollinearity Test

An implicit assumption that is made when using the OLS estimation method is that the explanatory variables are not correlated with one another. If there is no relationship between the explanatory variables, they would be said to be orthogonal to one another. If the explanatory variables were orthogonal to one another, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change.

The variance inflation factor, VIF, is a measure of the reciprocal of the complement of the inter-correlation among the predictor variables: $VIF = 1 / (1 - r^2)$ where r^2 is the multiple correlations

between the predictor variable and the other predictors. Multicollinearity is said to be a problem when the variance inflation factors of predictors becomes large.

It is possible to distinguish between two classes of multicollinearity: **perfect multicollinearity** and near multicollinearity. Perfect multicollinearity occurs when there is an exact relationship between two or more variables. In this case, it is not possible to estimate all of the coefficients in the model. Perfect multicollinearity will usually be observed only when the same explanatory variable is inadvertently used twice in a regression. **Near multicollinearity** is much more likely to occur in practice, and would arise when there was a non-negligible, but not perfect, relationship between two or more of the explanatory variables. Note that a high correlation between the dependent variable and one of the independent variables is not multicollinearity.

According to Haan (2002); Robert (2007) VIF values greater than 10 indicate possible problem of multicollinearity. Thus, in table 4.9 below the mean value VIF is below 10; i.e., there is no perfect co-linearity among independent variables.

Table 4.9 multicollonarity test

Variable	VIF	1/VIF
LIQIDITY	2.35	0.425398
TANGIBILITY	2.35	0.426134
LEVERAGE	2.06	0.486561
SIZE	1.43	0.701714
GROWTH	1.27	0.786982
MEAN VIF	1.89	

**Source: Financial statement of sampled Ethiopian insurance companies and own computation*

4.2.5 Normality (errors are normally distributed ($ut \sim N(0, \sigma^2)$))

Normality refers to the shape of data distribution for an individual metric variable. Normality is tested using graphical and statistical tests. The simplest test for normality is a visual check of the histogram that compares the observed data values with distribution approximating the distribution. The statistical methods are based on various assumptions that uphold the methods. One of them is the normality assumption. It is often required to check the normality in many data analyses, although normality is implicitly or conveniently assumed in reality.

The Shapiro-Wilk test is one of the most popular tests for normality assumption diagnostics which has good properties of power and it based on correlation within given observations and

associated normal scores. The Shapiro-Wilk test statistic is derived by Shapiro and Wilk (1965). The Shapiro-Wilk statistic (1965) is the ratio of the best estimator of the variance to the usual corrected sum of squares estimator of the variance. A non –significant result (P-value of more than 0.05) indicates that the distribution is normal. Meanwhile, a significant result (Pvalue of less than 0.05) indicates that the distribution violates the assumption of normality which is common in large samples (Pallant, 2005).

Table 4.10 Shapiro-Wilk test for normality

Variable	Obs	W	V	Z	Prob>Z
Roa	90	0.81164	14.248	5.859	0.00000
Leverage	90	0.97964	1.540	0.953	0.17036
Liq	90	0.96005	3.022	2.439	0.00736
Growth	90	0.84606	11.644	5.414	0.00000
Size	90	0.96859	2.376	1.908	0.02817
Tan	90	0.91125	6.713	4.199	0.00001

**source: financial statement of insurance companies computed by stata*

In the above table the P-value most variable is less than 0.05. Therefore, this model is violates by normal distributions. This model used large sample size and, therefore, there is no serious departures from the assumption of normality of the error terms were detected.

4.3 REGRESSION ANALYSIS

So far the study established a framework of literature and data analysis including descriptive statistics and correlation analysis in order to investigate the relationship between capital structure and firm performance and explanatory variables so that to answer the research questions.

This section of the study presents the results and interpretation of the regression/econometrics analysis before running the regressions; the data sets were tested for, multicollinearity, heteroscedasticity and normality. Thus, the regression analysis based on the model is presented here under table 4.5 below.

4.3.1 Fixed vs. Random effect model

The question which model is more appropriate FEM or REM is very difficult to answer. Often, after computing a summary effect, researchers perform a test of the null hypothesis. Under the fixed-effect model the null hypothesis being tested is that there is zero effect in every study. Under the random-effects model the null hypothesis being tested is that the mean effect is zero. Although some may treat these hypotheses as interchangeable, they are in fact different, and it is imperative to choose the test that is appropriate to the inference a researcher wishes to make.

The selection of a computational model should be based on our expectation about whether or not the studies share a common effect size and on our goals in performing the analysis. It makes sense to use the fixed-effect model if two conditions are met. First, we believe that all the studies included in the analysis are functionally identical. Second, our goal is to compute the common effect size for the identified population, and not to generalize to other populations.

By contrast, when the researcher is accumulating data from a series of studies that had been performed by researchers operating independently, it would be unlikely that all the studies were functionally equivalent. Typically, the subjects or interventions in these studies would have differed in ways that would have impacted on the results, and therefore we should not assume a common effect size. Therefore, in these cases the random-effects model is more easily justified than the fixed-effect model.

It is often said that the random effects model is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a fixed effect model is more plausible when the entities in the sample effectively constitute the entire population (for instance, when the sample comprises all of the stocks traded on a particular exchange). More technically, the transformation involved in the GLS procedure under the random effects approach will not remove the explanatory variables that do not vary over time, and hence their impact on $y_i t$ can be enumerated. Also, since there are fewer parameters to be estimated with the random effects model (no dummy variables or within transformation to perform) and therefore degrees of freedom are saved, the random effects model should produce more efficient estimation than the fixed effects approach.

The question is which model is more appropriate either fixed effect model or random effect model in this research models. In order to isolate, which model is appropriate the researcher used Hausman test. The Hausman test that examines whether the unobservable heterogeneity term is correlated with explanatory variables, while continuing to assume that regressors are uncorrelated with the disturbance term in each period. The null hypothesis for this test is that unobservable heterogeneity term is not correlated or random effect model is appropriate, with the independent variables. If the null hypothesis is rejected then we employ Fixed Effects method (BrooksC., 2008).

The Hausmen test hypothesis is

H0= Random effect model is appropriate

H1= Fixed effect model is appropriate

Table 4.11 Hausman specification test

	(b) Fe	(B) Re	(b-B) Difference	Sqrt (diag(v b-v B)) S.E
Leverage	-.0879223	-.1150382	.0271115	.0439009
Liq	.0698175	.0587052	.0111123	.0301333
Growth	-.0326968	.0351364	.0021397	.0065846
Size	.0209023	-.0163418	.0045605	.0049121
Tan	-.0928166	-.1177747	.0249581	.0772421

b – consistent under Ho and Ha; obtained from xtreg

B – inconsistent under Ha, efficient under Ho; obtained from xtreg

Test Ho: difference in coefficient not systematic

Chi2(5) - (b-B)' {(v b-B)⁻¹} (b-B)

- 2.35

Prob>chi2 - 0.7985

According to above table 4.11 shows Hausman specification test, the P-value the models is 0.7985 which are more than 5% level of significance. The conclusion from the above Hausmen tests results of P-value in this case is that, the null hypothesis of the random effects is failed to reject at 5 percent of significant level. This implies that, for this research model random effect model is more appropriate than fixed effect model.

Table 4.12 random effect regression result

ROA	Coef	Std.Err	Z	P> z	[95% con. interval]	
Leverage	- .1150382	.078586	-1.46	0.143	-.269064	.0389876
Liquidity	.0587052	.0351354	1.67	0.095	-.0101588	.1275692
Growth	.0351364	.0222829	-1.58	0.115	-.0788101	.0085372
Size	.0163418	.0061776	2.65	0.008	.004234	.0284496
Tan	-.117774	.0681238	-1.73	0.084	-.2512949	.0157456
Cons	-.154357	.1430376	-1.08	0.281	-.4347055	.1259915
Sigma u	.0141786					
Sigma e	.04121631					
rho	.10902599 (fraction of variance due to u i)					
R2 Overall	0.4126					

*source financial statement of insurance companies computed through stata

$$ROA = \beta_0 - \beta_1 LEV_{it} + \beta_2 LIQ_{it} - \beta_3 GR_{it} + \beta_4 SZ - \beta_5 TN + \epsilon_{it}$$

$$ROA = -0.15 - 0.12 LEV_{it} + 0.06 LIQ_{it} + 0.04 GR_{it} + 0.02 SZ - 0.12 TN + \epsilon_{it}$$

R square

It measures the variation in the dependent variable (ROA) is explained by the variation in the independent variable. In our case as we can see from the table 4.3 is 0.4126 which means our independent variable explained the dependent variable by 41.26% this also indicates that there are other variables that influence the variations in the level of performance of the firms.

4.3.2 Discussion of the Result

Firm leverage

Ho: Leverage is not a determinant factor for ROA

H1: Leverage is a determinant factor for ROA

As we know p-value is the mistake that we make by rejecting the null hypothesis. From the above regression table leverage have a regression coefficient of 0.1150382, z-stastics -1.46 and p value of 0.143. It indicate that we make 14.3% error if we reject the null hypothesis therefore it is better to accept the null hypothesis i.e. leverage is not a determinant factor for ROA.

We can interpret the coefficient of leverage as, if the value of firm leverage increased by 1birr the ROA of a firm will decrease by 0.1150382. Therefore, this study confirms a negative relationship and then accepts the previous hypothesis that there is a negative relationship between firm leverage and performance of the firm. This results has been consistent with Jensen (1986) that if firm leverage acts as a bonding device in terms of forcing managers to commit free cash flows to service debt, then higher debt will lead to lower funds available for managers in profitable investments and then lower performance. In addition, researcher results are consistent with the panel study of (changAikLeng 2004), who finds that gearing ratio (total debt to total capital) has a negative effect on earnings performance (return on equity and dividend payout) for Malaysian listed companies. He states that highly geared firms have statically significant lower financial returns and asserts that debt limits the ability of the firm to take on more risky projects which may be profitable.

Theoretical prediction yields no conclusion for the relationship between leverage and performance. The static trade-off theory asserts that bankruptcy costs overwhelm the tax shield when firms have too much debt. At least, from the empirical evidence, if a firm has too high a gearing level, the probability of bankruptcy increases rapidly. Thus, the firm selects its leverage level to obtain the lowest cost of capital (generally, minimizing its Weighted Average Cost of Capital (WACC)) to maximize firm value. Damodaran (1999) and Altman (1984) suggest that the optimum debt level is achieved when tax shields and bankruptcy costs are the same; at which time the WACC is minimized (Ross et al., 1995).

The pecking order theory suggests that firms with few investment opportunities and high free cash flows will have low debt ratios. Conversely, high growth firms with low free cash flows

will have high debt ratios. A number of studies have confirmed the existence of the pecking order theory. Rajan and Zingales (1995: 1454) utilize a data set from seven industrialized countries, and they find some evidence for the pecking order theory in the form of a negative association between leverage and profitability.

Liquidity

Ho: Liquidity is not a determinant factor for ROA

H1: Liquidity is a determinant factor for ROA

A result from random effect regression model shows that a positive and significant relationship between firms liquidity and performance of Ethiopian insurance companies. The table shows liquidity has a coefficient of 0.0587, z value 1.67 and p value of 0.095. From this we can conclude that liquidity is a significant or a determinant variable for ROA at 10% significance level. Therefore we reject the null hypothesis.

A positive relationship between liquidity and firm performance indicate that as the liquidity of a firm increases which means when the current asset of a firm greater than its current liability the performance of the firm also increases. Therefore, this study confirms a positive relationship and then accepts the previous hypothesis that there is a positive relationship between firm liquidity and performance of the firm.

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.

Growth

Ho: Growth is not a determinant factor for ROA

H1: Growth is a determinant factor for ROA

Firm growth has been one of most widely studied topics in economic literature. Several arguments highlight the crucial importance of this field. There is interest in the determinants of firm growth, both for individual businesses (who might be interested in sales growth) and also policy-makers (who are interested in job creation). With the availability of representative and comprehensive data sets the empirical literature on firm growth flourished. As a result, much work has been done, usually taking the form of regressions in which the growth rate of a firm is the dependent variable, and attempts are made to explain this in terms of a long list of other

variables. The growth of firms constitutes one of the central topics of interest to business and economic scholars. The investigation of firm growth delivers fundamental understandings of one of the key indicators of company performance as well as one of the fundamental factors of economies at all.

As we have seen from random effect model regression result growth has a positive and insignificant relation with firm performance with a regression coefficient of 0.1634, z-statistics -1.58 and p value of 0.115. Which means we make 11.5% error if we reject the null hypothesis therefore it is better to accept the null hypothesis. Even if firm growth has not a significant variable for ROA it have a positive relationship which means as a firm growth increases the ROA of insurance companies in Ethiopia also increases.

According to the pecking order theory, growing firms look out for external funds to finance the growth. This is as a result of exhausting the internally generated funds. Firms with a higher proportion of their market value accounted for by growth opportunity will have debt capacity. Myers (1977) and Auerbach (1985) also argue that leverage is inversely related to growth rate because the tax deductibility of interest payments is less valuable to fast growing firms since they usually have non-debt tax shields. Michaelas et al., (1999) found future growth positively related to leverage and long-term debt this long term effect may have a negative impact on firm performance.

Size of a firm

Ho: Size of a firm is not a determinant factor for ROA

H1: Size of a firm is a determinant factor for ROA

The results from random effect model shows that firm size have positive and significant relation with performance of a firm with a regression coefficient of 0.01634, z-statistics 2.65, and p value of 0.008. For a firm being large is very essential to have superior performance. From the regression result we can understand that as the size of a firm increases the performance of the insurance companies also increases.

This is an indication that, insurance companies with larger size have low rate of probability of default and hence their ability to use more debt funds. This supports the trade-off theory suggesting that larger firms exhibit lower probability of default. Debt capital providers are more comfortable in lending to large insurance firms than the smaller ones, this is because the larger ones have the ability to diversify their operations and hence reduce their risk profile. The smaller insurance companies employed less debt in their capital structure because of the problem of information asymmetries.

Tangibility

Ho: Tangibility is not a determinant factor for ROA

H1: Tangibility is a determinant factor for ROA

Tangibility refers to the degree to which the firm is financed by the fixed assets. The fixed assets to total assets ratio is used as proxy to measure the firm's tangibility. Generally, firms with more tangible assets tend to have low leverage and therefore it becomes difficult for them to use such assets as collateral for generating extra funds which may expose the firm towards the bankruptcy. On the other hand, tangibility may also enhance the firm capacity to use fixed assets as collateral whenever external funds are required owing to the reason that investment in assets are diversified which may untimely decrease the chances of bankruptcy.

The panel random effect estimation result of this study shows that there is a negative and significant relationship between asset tangibility insurance performances with regression coefficient of -0.1543, z-stastics -1.08, and p value of 0.084. This implies that for the sample insurance companies having high ratio of fixed asset to total asset there is low performances. This means that a sampled Ethiopian insurance company with high ratio of fixed assets to total asset leads lower performance of the companies, because in Ethiopia lending financial institutions not require fixed assets as collateral to provide debt to those of insurance companies.

The pecking order theory suggests, in contrary to the trade-off theory, that there is no optimal amount of debt. Instead, it suggests that profitable companies should finance themselves through retained earnings. This means the percentage of debt in the capital structure should be lower, since internally financed projects raise the value of the equity. Further, since tangible assets are easier to value than intangible assets, tangible assets should lead to less asymmetric information. Consequently, companies that possess high levels of tangible assets should be able in a larger extent to issue equity without sending negative signals. Conclusively this theory implies that there exist a negative relationship between tangible assets and debt this will decrease the advantage of interests which is tax deductible.

4.3.3 Summary of finding

The previous sections of the chapter presented the overall results of the study. Hence, this section presents summary of the results for each explanatory variable and their impact on profitability of insurance companies in Ethiopia. Thus, the following discussions findings present the relationship and impact of explanatory variables on profitability.

Table 4.13 summary of finding

Variables	Expected Signs	Actual Sign
Firm Leverage	Negative and Significant	Negative but insignificant
Growth Opportunity	Positive and Significant	Positive and insignificant
Firm Size	Positive and Significant	Positive and significant
Liquidity	Positive and Significant	Positive and Significant
Tangibility of asset	Positive and Significant	Negative and Significant

Chapter Five: Conclusion and Recommendation

This is the last chapter of the paper and under this part the researcher presents the conclusion of the findings, and finally, based on the drawn conclusion of the finding and the relevant literature the researcher indicates some basic recommendations.

5.1 Conclusion

Since Modigliani and Miller (1958) published their seminal paper proposing the irrelevance theorem, the „capital structure decision problem“ has puzzled researchers, and they have begun to investigate the relationship between leverage levels and firms“ values. In a perfect capital market, Modigliani and Miller argue that the value of firms is not affected by the choice of gearing ratio. This argument however, has been challenged by subsequent researchers, who have found that several other factors influence capital structure decisions. There are four major capital structure theories based on three assumptions. The four major capital structure theories are: (1) the static trade-off, (2) pecking order, (3) market timing, and (4) free cash-flow theories; and the three assumptions are: (1) the tax benefits of gearing, (2) bankruptcy costs and (3) asymmetric information.

A) Firm leverage

Leverage has a negative and insignificant on profitability of insurance companies in Ethiopia. The static trade-off theory asserts that bankruptcy costs overwhelm the tax shield when firms have too much debt. At least, from the empirical evidence, if a firm has too high a gearing level, the probability of bankruptcy increases rapidly. Thus, the firm selects its leverage level to obtain the lowest cost of capital. The pecking order theory suggests that firms with few investment opportunities and high free cash flows will have low debt ratios. Conversely, high growth firms with low free cash flows will have high debt ratios.

B) Liquidity

A result from random effect regression model shows that a positive and significant relationship between firms liquidity and performance of Ethiopian insurance companies. From this we can conclude that when the current asset of a firm greater than its current liability the performance of the firm also increases. 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.

C) Growth

Firm growth has been one of most widely studied topics in economic literature. Several arguments highlight the crucial importance of this field. First, firm growth is related very closely to firm survival. Specifically, firm growth is positively correlated with the likelihood of survival. Hence firms that experience continuous growth will have a higher probability of surviving in the market¹. Second, firm growth has consequences for employment². A positive rate of growth implies a net creation of new jobs, while a negative rate implies the net destruction of jobs. Job creation and job destruction are closely related to the ability of incumbents and new entrants to grow. And, obviously, the evolution of employment therefore has obvious impacts on government budgets.

From random effect model regression result growth has a positive and insignificant relation with the performance of insurance companies in Ethiopia. From this we can conclude that the positive relation between growth rate and profitability of insurance companies in Ethiopia implies that insurance companies with high rate of growth in terms of their total assets are also in a better position of being profitable

D) Size of a firm

Firm size has positive and significant relation with performance of a firm. For a firm being large is very essential to have superior performance. From the regression result we can understand that as the size of a firm increases the performance of the insurance companies also increases. This is an indication that, insurance companies with larger size have low rate of probability of default and hence their ability to use more debt funds. This supports the trade-off theory suggesting that larger firms exhibit lower probability of default.

E) Tangibility

Tangible assets are one of the key drivers for explaining the capital structure within firms. The impact of a firm's composition of assets and how they explain its capital structure is an ongoing debate. Tangible assets are generally more liquid than intangible assets.

The panel random effect estimation result of this study shows that there is a negative and significant relationship between asset tangibility insurance performances. This means that a sampled Ethiopian insurance company with high ratio of fixed assets to total asset leads lower performance of the companies, because in Ethiopia lending financial institutions not require fixed assets as collateral to provide debt to those of insurance companies. The other reason is the fixed asset of Ethiopian insurance companies not able to generate revenue. This shows that firms

with high ratio of tangibility have a lower performance ratio. This result is consistent with pecking order theory which implies relationship between leverage and asset tangibility.

5.2 Recommendation

Insurance companies should pay special attention to firm characteristics in determining their optimal capital structure. Also, like any good business, they should maintain good banking relationships to finance themselves when needed at competitive low rates in order to reduce their overall cost of financing. Most research has been conducted for capital structures in developed countries. Research in developing countries has been neglected and limited, and therefore, much needed.

The finding result states that the leverage level negatively affects the profitability of Ethiopian Insurance companies. Thus as leverage increase, the performance decreases. Therefore Policy makers should place greater emphasis on the facilitation of equity venture capital and reduce the excessive amount of leverage in their capital structure in order to maximize their profit.

Among the five independent variables, the three variables (liquidity, size, and tangibility) are significant variable for profitability of Ethiopian Insurance Companies. So that the manager of Insurance Company must highly use such variables effectively to maximize the values of the Organization with minimized weighted average cost.

It is suggested that further research addressing a longer period of time with having a broader selection of capital structure and profitability measures can expose some new issues. This study can be extended by adding more insurance companies or by conducting a study on global level with inclusion of all banks insurance companies. Future research could include more variables such as taxation. Finally, the results are consistent with capital structure theories of static trade-off and pecking order theory. However, some of the results are statistically insignificant and would need further research to determine their relevance in determining the capital structure of insurance companies in Ethiopia.

5.3 Future research directions

- ✓ This study focused only on micro level variables that affect profitability of insurance companies in Ethiopia. So, the researcher recommended the next researcher to include macro level variables that affect capital structure of Ethiopian insurance companies.

- ✓ There is no extensive literature in Ethiopia regarding capital structure and financial performance. Future studies can use other indicators for these determinants and reinvestigate their relationships.
- ✓ The study has laid some ground work to explore the impact of capital structure on performance of Ethiopian insurance industries. Further work is required to develop new hypotheses and design new variables to reflect the firm specific factors to influence on firm performance related with theory of capital structure.
- ✓ Even though the researcher use selected specific internal variables in this study that determine the capital structure of Ethiopian Insurance Companies and have impacts on profitability but there is still need to consider as many variables as possible to get more determining variable that have an impact on the profitability.

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Appendix: Summaries of raw data

Year	Company	leverage	ROA	LIQ	GROWTH	SIZE	TAN
2007	EIC	0.6844	0.0686	1.2072	0.0700	17.9455	0.0797
2008	EIC	0.7382	0.0702	0.9924	0.1031	17.9536	0.0728
2009	EIC	0.7444	0.0741	1.1070	0.1160	17.9992	0.0683
2010	EIC	0.7588	0.0908	1.0872	0.1501	18.1586	0.0697
2011	EIC	0.7972	0.0872	0.9917	0.1641	18.4515	0.0802
2012	EIC	0.8246	0.0845	0.9405	0.3884	18.4636	0.0585
2013	EIC	0.8264	0.1142	0.9677	0.1655	18.7813	0.0689
2014	EIC	0.8144	0.1355	0.9849	0.1012	19.0212	0.0796
2015	EIC	0.8267	0.1389	0.9462	0.0782	19.0131	0.0732
2016	EIC	0.7494	0.1351	1.0302	0.1362	19.0453	0.0665
2007	NICE	0.6816	0.0637	0.9490	0.9859	15.9027	0.2035
2008	NICE	0.6662	0.0462	0.9315	0.1071	15.8978	0.1829
2009	NICE	0.6802	0.0383	0.8112	0.1655	15.9100	0.1588
2010	NICE	0.7029	0.0475	0.9921	0.2328	15.8936	0.1268
2011	NICE	0.7869	0.0028	1.1206	0.3726	15.8652	0.0898
2012	NICE	0.7511	0.1244	1.0525	0.6701	16.0415	0.0641
2013	NICE	0.6919	0.1072	1.2023	0.3592	16.0961	0.0498
2014	NICE	0.7362	0.0625	1.1232	0.2946	16.2112	0.0432
2015	NICE	0.6778	0.3736	1.2080	0.1039	16.4166	0.0480
2016	NICE	0.7195	0.0629	1.0739	0.1993	16.7154	0.0540
2007	AIC	0.6863	0.0584	0.9892	0.6006	16.8153	0.1494
2008	AIC	0.7015	0.0624	0.8171	0.1406	17.2714	0.2066
2009	AIC	0.7296	0.0414	0.7856	0.1864	17.6112	0.2447
2010	AIC	0.6892	0.0903	0.8322	0.1920	17.8258	0.2544
2011	AIC	0.7387	0.0656	0.7846	0.5255	18.5456	0.3425
2012	AIC	0.7683	0.0690	0.8507	0.4168	18.4892	0.2285
2013	AIC	0.7349	0.1239	0.8890	0.1921	18.5624	0.2062
2014	AIC	0.6924	0.1004	0.8609	0.0375	18.7900	0.2496
2015	AIC	0.6951	0.0993	0.8322	0.1174	18.9340	0.2580
2016	AIC	0.6702	0.0744	0.8238	0.2985	19.2092	0.2616
2007	AFIC	0.7481	0.0204	1.0833	0.7924	15.7261	0.0387
2008	AFIC	0.8017	0.0373	0.9990	0.3168	16.2085	0.0476
2009	AFIC	0.7901	0.0478	0.9361	0.0351	17.1165	0.1140
2010	AFIC	0.8079	0.0569	0.8890	0.4010	17.8953	0.1773
2011	AFIC	0.8224	0.0443	0.8271	0.2921	18.3206	0.2100
2012	AFIC	0.8118	0.0467	0.6717	0.1728	18.8480	0.3034
2013	AFIC	0.7806	0.0523	0.5431	0.0171	19.1392	0.4130
2014	AFIC	0.7698	0.0673	0.6317	0.1013	19.1032	0.3618
2015	AFIC	0.6726	0.0626	0.3646	0.1143	19.0884	0.3199

2016	AFIC	0.6417	0.0580	0.2626	0.0693	19.2195	0.3411
2007	NIC	0.7548	0.0227	0.8810	0.7055	17.3575	0.1799
2008	NIC	0.7671	0.0155	0.6843	0.0172	17.5956	0.2323
2009	NIC	0.7519	0.0217	0.7184	0.0337	17.5783	0.2209
2010	NIC	0.6444	0.1379	0.9275	0.1542	17.6359	0.2027
2011	NIC	0.6469	0.0863	0.9642	0.1891	17.6703	0.1765
2012	NIC	0.6414	0.0918	1.0891	0.3609	17.6660	0.1291
2013	NIC	0.6504	0.0986	1.1108	0.1618	17.9731	0.1511
2014	NIC	0.6618	0.1126	1.0900	0.1470	18.1923	0.1640
2015	NIC	0.6267	0.0816	1.1534	0.1833	18.2591	0.1481
2016	NIC	0.6666	0.0307	0.8482	0.1351	18.9207	0.2529
2007	NYIC	0.5818	0.0796	1.0771	0.8057	17.3014	0.2577
2008	NYIC	0.6337	0.0479	0.9721	0.1288	17.4063	0.2536
2009	NYIC	0.5678	0.1188	0.9063	0.0572	17.6514	0.3065
2010	NYIC	0.4467	0.0756	0.9823	0.6622	17.6632	0.1866
2011	NYIC	0.5760	0.1292	1.0176	0.1435	17.8321	0.2579
2012	NYIC	0.5952	0.1401	1.0995	0.4314	17.8769	0.1884
2013	NYIC	0.6179	0.1342	1.1423	0.3839	18.1262	0.1747
2014	NYIC	0.6029	0.1217	1.2176	0.2726	18.1726	0.1438
2015	NYIC	0.6251	0.1065	1.2446	0.3760	18.1804	0.1053
2016	NYIC	0.6415	0.1030	1.1745	0.1587	18.1884	0.0916
2007	UIC	0.6009	0.0869	1.1115	0.8711	16.5704	0.1409
2008	UIC	0.6195	0.1323	1.1068	0.3219	16.7456	0.1270
2009	UIC	0.6898	0.0472	1.0268	0.1714	16.8662	0.1223
2010	UIC	0.7096	0.1378	1.1695	0.0872	16.8665	0.1126
2011	UIC	0.6518	0.0795	1.1893	0.3789	16.9022	0.0846
2012	UIC	0.6478	0.1011	1.2454	0.3838	17.0067	0.0679
2013	UIC	0.6211	0.1385	1.2684	0.2064	17.4980	0.0919
2014	UIC	0.6206	0.1412	0.9112	0.1826	18.9481	0.3315
2015	UIC	0.5609	0.1306	0.7286	0.0873	19.3438	0.4529
2016	UIC	0.5425	0.0658	0.7186	0.2029	19.2211	0.3330
2007	GIC	0.4792	0.0373	1.5432	0.9452	16.4041	0.3631
2008	GIC	0.5543	0.0309	0.8466	0.2076	16.9926	0.5417
2009	GIC	0.5767	0.0365	0.9619	0.2198	17.0124	0.4529
2010	GIC	0.5951	0.0559	0.8395	0.1255	17.2169	0.4937
2011	GIC	0.5741	0.0291	0.9195	0.0755	17.2058	0.4540
2012	GIC	0.6815	0.0145	0.9160	0.4320	17.3014	0.3489
2013	GIC	0.6475	0.1130	1.1350	0.3270	17.3337	0.2715
2014	GIC	0.5699	0.1220	1.3519	0.2406	17.3657	0.2260
2015	GIC	0.4882	0.1070	1.6320	0.2099	17.3312	0.1804
2016	GIC	0.5030	0.0956	1.4691	0.1831	17.3001	0.1478

2007	NBIC	0.6282	0.0722	1.0541	0.5525	15.9529	0.0859
2008	NBIC	0.7365	0.0953	0.8573	0.2778	16.7007	0.1420
2009	NBIC	0.7367	0.0790	0.9426	0.5315	16.8701	0.1098
2010	NBIC	0.5660	0.0589	0.9797	0.7259	17.1217	0.0818
2011	NBIC	0.7404	0.0559	0.9999	0.0832	17.3597	0.1132
2012	NBIC	0.7845	0.0608	0.9693	0.5545	17.5913	0.0918
2013	NBIC	0.7329	0.0886	1.0518	0.0893	17.6749	0.0916
2014	NBIC	0.6991	0.0960	1.1079	0.2582	17.8828	0.0897
2015	NBIC	0.6685	0.0693	1.0994	0.1655	18.4751	0.1391
2016	NBIC	0.6454	0.0512	1.0560	0.0806	18.5945	0.1451