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Capital Market Development and Financial Institution Performance in Ethiopia

ADDIS ABABA UNIVERSITY
FACULTY OF BUSINESS AND ECONOMICS
DEPARTMENT OF BUSINESS ADMINISTRATION
POST GRADUATE PROGRAM

A Research submitted in Partial Fulfilment of the Requirements for the Award of Master of Arts Degree in Business Administration

By: Mekdes Bulti

Advisor: Yitbarek Takele (Assoc. Prof.)

January, 2020

Addis Ababa, Ethiopia

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DECLARATION

I Mekdes Bulti, declare that this Research Project entitled ‘Capital Market Development and financial institution Performance’ is my own original work. It contains no material which has been accepted for the award of any other degree of the University or any other institution of higher learning. All sources of materials used for the research paper have been duly acknowledged.

……

Mekdes Bulti

ENDORSEMENT

This Research Project entitled 'Capital Market Development and financial institution performance' has been submitted to Addis Ababa University Faculty of Business and Economics, Department of Business Administration, with my guidance and approval as a University Advisor.

……

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(Assoc. Professor)

AKNOWLEDGEMENT

I would like to acknowledge my indebtedness and render my warmest thanks to my supervisor, Yitbarek Takele (Assoc. Professor) for his time, patience, unlimited support and guidance throughout this research.

I would also like to especially thank my family for putting up with my absence and the many hours of work required to conduct this research. Thank you Amore, Hiyab, Naomi, Nona and Eyu.

I would like to dedicate this thesis to my father and mother, mentors and life coaches Ato Bulti Terfassa and Wro. Fetlework Shibeshi. I am forever in your debt for all my life accomplishments.

My appreciation also goes to financial institutions executive management staff and experts who gave their valuable time filling the questionnaires, answering the interviews and also giving me their valuable suggestions and recommendations. I trust that the finding will be of benefit to you and the financial institutions in Ethiopia. It will also provide insights for further financial system development investigation into the intricacies of financial system components, to continually improve development and guarantee stable and resilient financial system in Ethiopian.

ABSTARCT

Capital market in Ethiopia was established at the beginning of the Imperial era, although it was disrupted by the military regime and has never since resumed. After a trifling effort to establish the capital market since the early 1990s, the current government has shown a strong interest in developing the capital market and looking forward to promoting economic growth. The study endeavours to investigate how the introduction of capital market could potentially interact with existing financial institutions that might unfold as competitive, complementary or co-evolutionary. The paper utilized market capitalization and trade volume as proxy measures for capital market performance. It also used liquidity, efficiency, profitability, capital adequacy and asset quality to measure banks performance; and profitability, operation growth, solvency, asset quality and management soundness to evaluate insurance companies' performance. The study employed a combination of multi-criteria decision making approaches to establish level of importance of each indicator and capture influence relationship. AHP ranked liquidity, capital adequacy, asset quality, profitability and efficiency based on their level of importance in measuring banks' performance. Projected the forthcoming capital market interplay with bank performance using DEMATEL revealed, market capitalization, efficiency and asset quality would affect-influence liquidity, trade volume and profitability of banks. Regarding insurance companies', profitability, operating growth, solvency, asset quality and management soundness were ranked, respectively. Moreover, the affect-influence relationship between capital market and insurance companies' performance indicated, operating growth, solvency and management soundness bi-directional relationship with profitability, asset quality, market capitalization and trade volume. Therefore, this research concluded that banks would have a competitive relationship during the advent of capital market; whereas insurance companies would have complementary interplay.

Keywords: Capital market, Bank, Insurance, AHP, DMATEL.

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List of Acronyms and Abbreviation

ADL	Allowance for Doubtful Loans
AHP	Analytical Hierarchy Process
DBE	Development Bank of Ethiopia
DD	Demanded Deposit
DEMATEL	Decision-Making Trial and Evaluation Laboratory
EBT	Earning Before Tax
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
LA	Liquid Asset
LLR	Loan Loss Reserves
NBE	National Bank of Ethiopia
No.Emp.	Number of Employees
NPL	Non-performing Loan
NYSE	New York Stock Exchange
OL	Outstanding Loans
OTC	Over the Counter
ROA	Return on Asset
ROE	Return on Equity
RWA	Risk weighted Asset
SE	Security Exchange
TA	Total Asset
Tad	Total advance
TC	Total Capital
TD	Total Deposit
TE	Total Equity
TR	Total Revenue
WB	World Bank

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The financial system is complex in structure and function throughout the world. This system is composed of financial institutions (banks, insurance companies, mutual funds) and financial markets (stock and bond markets) which are regulated by the government (Mishkin, 2007).

The financial system plays a pivotal role in the economy by making it possible for households, companies and governments to access capital (Rogers, 2018). The financial system channels money from savers to productive investment opportunities in three ways: borrowing from a bank, selling shares on a stock market and issuing bonds on a bond market. It is essential for every economy to have these options called "three-legged" approach to guarantee risk sharing and enhances any financial system's ability to cope with shocks. Most developing countries lack this integration in their financial system which compromises stability (Friedman, 2000). Ethiopia is one of the developing countries where its financial system only bases on financial institution though minimal effort had been taken to establish financial market (Capital market) early on.

Capital market is a market for debt or equity securities and other financial instruments, where government or private owned businesses can raise long-term funds. Capital market is categorized into primary and secondary market. Primary market is a market where new bond or stock issues are sold by the process of underwriting. Secondary market is where existing securities are bought and sold among investors on a stock exchange (SE) or over-the-counter (OTC) (Ruecker, 2011).

The first genuine stock markets didn't arrive until the 1500s. However, there were plenty of early examples of markets which were similar to stock markets. The world's first stock markets are generally linked back to Belgium. Bruges, Flanders, Ghent, and Rotterdam in the Netherlands all hosted their own "stock" market systems in the 1400s and 1500s. However, it's generally accepted that Antwerp had the world's first stock market system. Antwerp was the commercial centre of Belgium and it was home to the influential Van der Beurze family. As a result, early stock markets were typically called Beurzen. Due to the lack of regulation and few ways to distinguish legitimate companies from illegitimate ones, the stock market could not function properly and was forced to shut down. The first stock exchange was later found in the city of London, United Kingdom in1801 followed by New York Stock Exchange (NYSE) establishment

in 1817 (Nyasha and Odhiambo,2013). In recent times, stock markets are a driving economic force all around the world contributing to the growth of the global economy.

The development of capital market and its contribution to economic growth has been justified by many scholars. Researchers such as Choong, Lam and Yusop, (2010); Francis, Hasan and Ofori (2015); Bremus and Stelten, (2017) and Coskun, (2017) suggested the development of capital market is crucial to mobilize resources to fund projects with capital needs and their risk sharing behaviour with financial institution to provide financial system stability and contribute to economic growth. Especially in a developing country like Ethiopia, capital market development will boost the economy by promotion and development of the private sector, provision of relief to liquidity constraints, improvement of competition among financing sectors, enhancement in the volume of remittance, improvement of corporate governance, rewarding sound economic policies and creation of tools to conduct monetary policy (Ruecker, 2011).

The history of the stock market in Ethiopia dates back to as early as the Imperial period. During this time, Ethiopia inaugurated institutions of stock market, such as the "Addis Ababa Share Dealing Group". However, the stock market was put to an end due to the introduction of command economy by the Derg regime in 1974 (Geda, 2017).

The Ethiopian financial system consists of 2 public banks, 16 private banks, 16 private insurance companies, 1 public insurance company and 31 microfinance institutions. "The Ethiopian economy has been under state control through a series of industrial development plans ever since the Imperial government. Even though significant development steps were taken since 1991, Ethiopia's financial sector is relatively small, closed and much less developed than those of its neighbours. The government dominates lending, controls interest rates and owns the largest bank" (Ruecker, 2011). Therefore, due to lack of political will and state controlled economy, the launch of the capital market was delayed for some decades. This delay made the financial system fully bank based. Thus, banks became key players in the financial system dealing with short-term finance, temporary cash requirements and long term physical investment needs across all sectors of the economy playing a pivotal role in the growth of the economy.

The current government seems to have taken a different path regarding establishment of capital market. Accordingly, the National Bank of Ethiopia (NBE) is undertaking detailed assessments on capital market in order to launch it in May, 2020. NBE is currently working on the development of the policies and regulations to adopt a suitable financial platform. However, how

capital markets emerge and evolve with existing financial institution in shaping the financial structure of an economy still remains debatable in the body of the literature. According to studies done in developing and developed economies around the world, during the introduction and development of capital market complementary, competitive and co-evolutionary interdependencies may exist towards existing financial institutions. Researchers such as Deidda and Fattoouh, (2008); Boot and Thakor, (1997) and Mattan and Pannetti, (2012) suggest competitive or substitute interdependency while Francis et.al, (2015); Osoro and Osano, (2014) and Odhimbo, (2010) claim complementarity. And others such as Song and Thakor, (2010); Ahokpossi, (2013) and Arize, Kalu and Nkwor, (2018) assert co-evolutionary interaction.

Therefore, this study attempts to investigate the possible interaction between capital market development and the two major financial institutions in Ethiopia (banks and insurance companies) because of their relative size and importance in the economy to set a potential road map for the financial sector.

1.2 Statement of the problem

The finance-growth debate has evolved over the years, initiating a number of theories and hypothesis including financial liberalization; finance-led growth; growth-led finance; market feedback; bank-based and market-based.

The development of financial institutions and markets and their contribution towards economic growth have been supported with empirical evidence by various scholars (Demirguc-Kunt and Levine (2001); Choong, et. al., 2010; Francis et. al., 2015; Bremus and Stelten, 2017 and Coskun, 2017). Especially for developing economies financial development and integration of institutions and markets guarantees risk sharing which enhance financial system's ability to cope with shocks by three financing mechanisms called “three-legged” approach (Friedman, 2000).

Although the integration of capital market and financial institutions foster economic growth, there exists mixed interplay between the two components with respect to performance (Sayari and Shamki, 2016). Further, these interdependencies vary due to level of economic development (Nyasha and Odhiambo, 2017). Moreover, this interdependencies were studied on already existing markets and there are methodological conflicts see (Deidda and Fattoouh, 2008; Odhimbo, 2010; Mattan and Pannetti, 2012 and Mogbolu and Tizhe, 2017).

There is abundant extant literature that studied the interdependence between existing financial markets and institution; there exist competing and contradictory claims among various scholars.

Some claim competitive relationship (Dey, 2007; Deidda and Fattoouh, 2008; Boot and Thakor, 2010 and Mattan and Pannetti, 2012), while others claim complementary (Skipper, 1997; Catalan et. al., 2000; Impavido, Musalem and Tressel, 2003; Bossone and Lee, 2004; Arena, 2008; Odhimbo, 2010; Osoro and Osano, 2014; Francis et.al, 2015 and Al Shubiriand Jamil, 2017). There are also others who claim co-evolutionary interdependency (Song and Thakor, 2010; Ahokpossi, 2013 and Arize et.al, 2018). However, there is no research that investigated the potential interplay between financial markets and institutions during the introduction phase especially in a developing economy context.

Given that, Ethiopia is about to introduce capital market, exploring the potential interplay between existing financial institutions and the to be introduced capital markets is believed to have paramount importance which otherwise will have unintended and detrimental effect. Such endeavour helps financial institutions to get ready and tap potential benefits and with stand possible setbacks.

This study therefore, explores the projected interdependence between existing financial institutions and forthcoming capital market by importing AHP and DEMATEL multi-criteria decision making models from decision science discipline. Accordingly, over and above, what has been stated before, the study also methodologically contributed by introducing multi-criteria decision making models in to the main stream management research undertaking.

1.3 Research questions

In attempting to address the issues highlighted under the statement of the problem, the following research questions were developed:

1. How do key performance indicators of financial institutions evolve over a period of time?
2. What is the relative importance of key financial institutions' performance indicators?
3. How do capital market development and financial institution performance affect-influence each other?

1.4 Objectives of the study

1.4.1 General objective

The main objective of this study is to analyse the trend and pattern of the two main existing financial institutions (banks and insurance companies) performance indicators over a period of time and rank each indicators as per their level of importance. Further, the study extends to

assess the potential interdependency of these financial institutions in Ethiopia with the forthcoming capital market and its implication.

The thesis will also widen knowledge base for stakeholders of the financial institutions in Ethiopia by providing information about the basic changes of integrated financial system. Moreover, the study will propose coping mechanisms in case of projected challenges and strategies for potential benefits, by assessing and identifying the main performance indicators of financial institution that highly interact with capital market.

1.4.2 Specific objectives

The specific objectives of this study are;

1. To assess the trend and pattern of financial institution key performance indicators.
2. To rank each performance indicators (liquidity, efficiency, profitability, capital adequacy and asset quality) for the banking industry and with respect to (profitability, operating growth, asset quality, solvency and management soundness) for insurance companies according to their level of importance.
3. To project the possible interplay between the forthcoming capital market and existing financial institutions performance indicators.

1.5 Definition of key terms

Performance

Performance refers to the capability of an organization to grow, remain profitable and respond to challenges and threats. It could also be used to mean how well the organization attains its set goals and targets.

Multi-criteria

The multi-criteria decision making methods pursue the objective approach of taking a decision. Various criteria are considered before the selection of the optimal alternative. There are two types of MCDM method: Compensatory and Outranking. Analytical Hierarchy Process is an example of compensatory method which selects the better alternatives from various available options by the adaptation of a hierarchical structure comparing each of the alternatives with each other with respect to the criteria and each of the criteria with the other criteria with respect of the goal of the decision making (Majumder and Saha, 2016).

Analytical Hierarchy Process (AHP)

The Analytic Hierarchy Process (AHP) is a general theory of measurement. It is used to derive ratio scales from both discrete and continuous paired comparisons. These comparisons may be taken from actual measurements or from a fundamental scale which reflects the relative strength of preferences and feelings. The AHP has a special concern with departure from consistency, its measurement and on dependence within and between the groups of elements of its structure. It has found its widest applications in multi-criteria decision making, planning, performance evaluation, resource allocation and in conflict resolution. In its general form the AHP is a nonlinear framework for carrying out both deductive and inductive thinking without use of the syllogism by taking several factors into consideration simultaneously and allowing for dependence and for feedback, and making numerical trade-offs to arrive at a synthesis or conclusion. T. L. Saaty developed the AHP in 1971- 1975 while at the Wharton School (University of Pennsylvania, Philadelphia, Pa).

Decision-Making Trial and Evaluation Laboratory (DMATEL)

Decision-Making Trial and Evaluation Laboratory (DEMATEL) methodology is proposed to research and solve complex and closely linked problem groups because of its capability in verifying interdependence between variables and try to improve them by offering a specific chart to reflect interrelationships between variables. Decision-Making Trial and Evaluation Laboratory (DEMATEL) technique was employed by (Fontela and Gabus, 1976) and it has managed to solve many global complex problems in scientific, political and economic by considering experts' attitudes (Gabus and Fontela, 1972; Gabus and Fontela, 1973). This method mainly identifies interdependency relationships between variables (Chen, 2016).

1.6 Delimitation of the study

The scope of this study is restricted to the interaction of the financial institutions (banks and insurance companies) and capital market only in Ethiopia. This study is focused on only firm specific performance factors for each financial institution. The research does not consider any policy or legal platform related concepts that could affect the relationship. Therefore, a more extensive study on past-completed researches will bring additional detailed insights on the subject matter.

1.7 Limitation of the study

Experience of the stock market is limited in Ethiopia. During the development of this research finding experts both on capital market development and financial institution performance was a major challenge. Having more access to more experts with first-hand experience of capital market would have enhanced the validity of the research outcome. This is mainly because there is no first-hand experience of capital market in Ethiopia and the experts found for this study developed their experiences in different economic context. For this reason when it comes to the full picture once again the predictions of interaction with the existing financial institutions is not going to be as accurate as countries with experience. Therefore, the study cannot fully cover all expectations of this market interdependency with precision.

1.8 Contribution of the study

This thesis will contribute by creating awareness and proposing remedies from success experience with the provision of alert to failure by trying to answer the above research questions. It will also try to give insight on the possible interaction results that come from the two financial systems to contribute to other countries with similar context.

1.9 Organization of the paper

The rest of the chapter is categorized as follows. Chapter Two presents literature review with general descriptions by different researchers, empirical literature review, summary of literature review and conceptual framework. Chapter Three depicts about research methodology followed by Chapter Four consisting of research findings and discussions. Finally Chapter Five will conclude with research conclusions, recommendations and areas for future study.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section presents evolving financial system and economic growth theories and interdependencies of financial system components in promoting growth. Further, this section compiled the findings from different reviewed literatures on financial institution (bank and insurance) performance measures and interdependencies they have with financial market (capital market) performance indicators.

2.2 Theoretical review

Finance-Led Growth Hypothesis

The Finance-led Growth Hypothesis was proposed by Schumpeter, (1911) which elaborates the interrelations between financial markets and efficiency in the capital markets. The theoretical foundation of the relationship between finance and growth can be traced back to the early discussions of Bagehot, (1873) who argue that the financial system plays a critical role in facilitating the mobilization of capital and growth; subsequently extended by Schumpeter, (1911) who contends that the services provided by financial institutions are essential drivers for innovation and growth. Schumpeter notes that a well-developed financial system channel financial resources to the most productive use; thereby suggesting that finance leads economic growth. This has come to be known as the finance-led hypothesis.

The economic aspect in a country and the financial sector exists in a supply lending relationships. Hence development in the financial sector will result in economic growth being experienced in different sectors. This is because the availability of well-functioning financial sector and financial intermediations will act to provide efficient allocation in resources which in turn promotes growth.

The proposition of the theory is that in scenarios whereby there is evolved and developed financial markets, there will be increased capital accumulation levels from the normal. Higher capital accumulation levels are desirable as there increased capital resources for developing various sectors of the economy. Therefore, based on this theory, improving the financial sector policies and determinants of financial development is mechanism for promoting overall economic growth (Ohwofasa and Aiyedogbon, 2013). Development of capital market is a vital

part in growth of the financial sector as it substitutes the functions of banks in economic growth. This is because they help price allocation, provision of liquidity, trading costs reduction and transfer of risk.

Growth-led Finance Hypothesis

Growth-led Finance Hypothesis was formulated and developed by Robinson, (1952) in challenging the Finance Led Growth Hypothesis of Schumpeter, (1911). According to this theory, a country experiencing high growth in the economy will result in increased demand for certain financial instruments and arrangements that respond effectively to these changes and demand in the economy. Therefore, the economy will develop the necessary financial markets and institutions to finance the opportunities arising from experienced economic development (Robinson, 1952).

The theory suggests that where enterprise development leads, finance follows. In other words the main cause of financial development is economic growth in response to the demand thus created. Argument arising from this theory is that the factors that determine how economies grow are not confined by the financial sector.

The Theory of Financial Liberalization

Theory of Financial Liberalization was proposed by Mc Kinnon, (1973) which explains importance of liberalized financial markets in a country. The theory suggests that financial liberalization policies would increase savings which consequently promote investment and hasten economic growth. They argued that higher interest rates brought about by liberalization leads to a more efficient allocation of resources, higher level of investment and economic growth. A fully liberalized financial system domestically is mainly characterized by lack of controls on borrowing interest rates, no subsidies to certain sectors and lack of credit controls.

Financial liberalization may result to adverse effects on market development in both short term and positively in the long run. Through the liberation of the financial markets, the banks are able to operate more freely and widely with minimal restrictions. The reason is that liberalizing the system would result to financial crunches since current account opening leads to over borrowing. The importance of the theory is that it links capital market deepening to come about as a result of liberalization in the financial markets which in turn influences the banking sector. This is characterized by increased financial intermediation by both savers and traders with monetization of the economy (Kaminsky and Schmukler, 2003).

Market Feedback Hypothesis

This theory which is also known as Bi Directional Hypothesis was introduced by Shaw, (1973). The theory states that there exists a relationship that is two way between economic growth and development in the financial sector. Hence the financial sector will develop as a result of economic growth which will act as a feed back in stimulation of real economy growth (Akinlo and Egbetunde, 2007). This theory backs the argument of both supply leading and demand following hypotheses. In this hypothesis, the proposition is that having well developed financial systems could promote high expansion in the economy through innovation in product and services, and technological advancement (Levine, 1997). This in turn results in increased demand for financial arrangements and services. Based on the theory, capital market development and performance of the financial institutions are interrelated; hence expansion and development of one sector would result in improvement in the other.

2.3 Capital market development and bank performance

The financial system is a composition of financial institution and financial markets. It is complex, in function and in having internal mixed interdependency between its major system components in different economies. Literature reveals three types of interactions between financial institutions and market; competitive, complementary and co-evolving.

Competitive or substitute relationship suggests the development of one component at the expense of another. In support of this interaction Dey, (2007) and Deidda and Fattouh, (2008) inferred that the development of markets will come across with a huge competition for banks because of the similarities of the rendered services such as credit allocation; improving information asymmetry problems (Boot and Thakor, 1997); offering insurance against risks and providing information on investment opportunities (Mattana and Pannetti, 2012). Further, based on studies conducted in Africa, researchers such as Odhiambo (2010) and Nyasha and Odhiambo, (2017) concluded that there exists competitive interplay between bank and market. Moreover, Boyd and Smith, (1996); Song and Thakor, (2011) showed concerns on specifics suggesting that positive efficiencies may not develop in the banking system in association with capital market development if there is high government intervention in the financial system.

The other possible interplay between banks and capital market is complementarity. This relationship suggests development of one financial component opens up more opportunity to grow and prosper for another. Researchers such as Brogaard, Ngo and Xia, (2019) explained

complementarity of banks and stock market through improved stock price informativeness, which allows banks to learn more about the borrowing firm, reducing the adverse selection costs associated with syndication. Similarly Francis et al, (2015) emphasised that after the launch of stock market bank credit availability to the private sector increases significantly. Furthermore, the relationship between efficiency of banks and capital market is also defined complementary suggesting efficiency measures influence share price on stock market (Beccalli, Casu and Girardone, 2006; Ioannidis et.al, 2008; Vardar, 2013; Rawlin et.al, 2015 and Sharma, 2018).

On the other hand, Nyasha and Odhiambo, (2017) identified mixed results by analysing the interplay between banks and capital markets in different economic contexts. Based on their research findings, two out of three countries reveal complementary interdependency.

When the complementary interdependency between bank and market carries on for an extended period of time the relationship can be labelled as co-evolving. Song and Thakor, (2010) were the first to lay a theoretical basis about co-evolving interplay by extending on competitive and complementary interaction of banks and markets. They argued that banks are seen as competitors in markets and vice-versa only when they are viewed on a stand-alone or dominance basis. This means that when they are viewed from an interactive standpoint, they complement and co-evolve rather than compete. To elaborate further the authors used two scenarios (securitization and bank capital) that are significant for connectivity between banks and markets.

The process of securitization removes the frictions ('certification' and 'financing) that hamper borrowers' denial of financing as a result of wrong judgment from either bank (certification friction) or markets (financing friction). This encourages greater investor participation and speeds up capital market evolution.

Meanwhile, in the case of a bank capital scenario, bank financing frictions are reduced through markets, and capital requirements for riskier loans are boosted , thereby reducing the certification friction and serving the previously un served customers. These feedback eff ect on the interdependency between banks and markets are what the authors described as a vicious cycle that confirms a co-evolution between these sectors. Supporting the previous finding, Ahokpossi, (2013) stated that banks improve pressure from solvency and regulation on lending by accessing additional capital to meet regulatory requirements or indicate their solvency. Lower cost of equity capital is a potential driver of how costs of additional bank capital transmits into the interest rate charged on loans to bank borrowers. Moreover, Arize et. al., (2018) concluded that,

"a long-run link exists between bank models and market models, a complementary rather than a competing association, which suggests a co-evolving development."

2.3.1 Empirical review

In the body of literature there is also empirical evidence that suggest the three types of interaction between bank and market. Deidda and Fattouh, (2008) empirically analysed the interaction between bank and market finance in a model where bankers gather information through monitoring and screening. They showed in the study that, if a market characterized by a disclosure law is established such that entrepreneurs wishing to raise market finance can credibly disclose their sources of financing, this might undermine bankers' incentive to screen, even when screening is efficient. Correspondingly, they concluded other things being equal, the change from a bank-based system to one in which market-finance and bank-finance coexist might have an adverse effect on economic growth. Consistent with this result, suggesting bank and stock market development have a positive effect on growth, but the growth impact of bank development is lower the higher is the level of stock market development. Supporting these findings, Mattana and Paretti, (2012) on a panel study conducted on 45 countries found evidence that one unit increase in an index of securities market liberalization leads to a drop in the bank liquidity ratio between 15 and 22%. Concluding market capitalization significantly affects bank liquidity. Moreover, Mogbolu and Tizhe, (2017) also analysed whether capital market development influences banking system efficiency, and whether level of liquidity of the capital market is important for this relationship in SSA countries (Kenya, Nigeria and South Africa) using panel data instrumental variables regression methods. Based on the findings of the study, the researchers conclude that level of capital market activity contributes negatively to banking efficiency and that these effect is determined by low capital market liquidity.

Contrary to the above findings, Osoro and Osano, (2014) empirically tested the interaction of banks and capital markets in the Kenyan financial system by deploying a Vector Error Correction Model (VECM). They found a complementary and co-evolving relationship between the bank and the capital market in the Kenyan financial structure, although it is a bank-based economy. Similarly Odhimbo, (2010) empirically analysed the relationship between stock market and banks in South Africa using ARDL-Bounds testing approach. The empirical results show that there is a distinct positive relationship between banks and stock markets in South Africa. Further,

AlShubiri and Jamil, (2017) on an empirical study conducted in Oman stated market concentration measures have a significant impact on interest rate spread of banks among many other things that increase efficiency of banks concluding complementarity between bank and stock market

On a detailed approach Sayari and Shamki, (2016) conducted a study in Jordan regarding the impact of two stock market developments using multiple regression models. The researchers found mixed results on different profitability indicators of banks. The study concluded that; market capitalization variable has negative and significant influence on ROA, but it has significant positive influence on ROE; trading volume has strongly significant and positive influence on both ROE and ROA, suggesting that trading volume is the determinant factor for the bank's profitability; and finally, concluded that the ROE is a more superior measure of profitability to ROA suggesting capital market complements the banking sector in Jordan. Similarly, Nyasha and Odhiambo, (2017) found mixed results about capital market and financial institution interdependency because of different economic context. The study investigated three countries (USA, Brazil and Kenya) during the period from 1980 to 2012 which represent a modest cross-section of the general financial structure prevalent in many developed and developing countries. Unlike some of the previous studies, the study employs the newly developed ARDL-Bounds-testing approach to carry out the test. The study also employed the method of means-removed average to construct both bank-based and market-based financial development indices. And in conclusion, while in the USA and Brazil, bank-based and market-based financial systems complement each other in enhancing economic growth; in Kenya, the two financial systems seem to be substitutes rather than complements.

Based on these literature reviews the following prepositions were developed.

P1: Capital market development has competitive interplay with banks' performance.

P2: Capital market development has complementary interplay with banks' performance.

P3: Capital market development and banks' performance are co-evolutionary.

2.4 Capital market development and insurance performance

The interplay between stock markets and insurance, appear to be complementary in the body of the literature. Insurance activities, especially for life insurance companies, could promote stock market development (and bond markets) by investing funds (savings) raised through life insurance products into equities (Catalan, Impavido and Musalem, 2000 and Impavido, Musalem

and Tressel, 2003). Skipper, (1997) believes that the development of insurance fosters a more efficient capital allocation because the insurance companies gather significant information to evaluate projects and firms and so better allocate their financial capital. On the other hand, the development of stock markets will foster the growth of insurance companies because it provides them a more liquid market in which to invest their premiums. This is especially important for life insurance companies which seek to match their long-term liabilities with long-term assets (Arena, 2008). Arena, (2008) is among the very few studies of the interaction effect of insurance and stock markets in promoting economic growth. Moreover Catalan et. al., (2000) concluded that causality is mainly from contractual savings to stock markets. Given the evidence, it seems an interrelationship exists between insurance and the stock markets and appears complementary. When it comes to the bond market the relationship between bond markets and insurance can be viewed more of a complementary nature as well. According to Turner, (2002) insurance companies, together with pension funds, are called institutional investors, and these are considered the key players in the debt markets (bond markets). Given the long-term nature of their liabilities, insurance companies play a large investor role in the bond markets (and equity markets as discussed above) (Catalan et al., 2000 and Impavido et al., 2003). Insurance companies also issue catastrophe bonds, which are attractive to investors for diversifying their portfolios because they are uncorrelated with business activities (Arena, 2008). The bond markets, likewise, offer insurance companies more investment opportunities and liquidity (less liquidity risk). Insurance companies and bond markets are also related through risk transfer. According to Cox and Pedersen, (2001) insurance companies transfer to bond markets not only their market risk by hedging of embedded options in life insurance portfolios but also insurance risks related to natural catastrophe (cat bonds). On the insurance side, bond markets may transfer market risk to insurance companies when the latter write options and buy bonds with embedded options. These two components are expected to have interrelationship and the relationship seems to be complementary.

Based on these literature reviews the following prepositions were developed.

P1: Capital market development has competitive behaviour towards insurance performance.

P2: Capital market development has complementary behaviour towards insurance performance.

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2.5 Empirical review on banks and insurance company performance indicators evaluation.

Understanding the factors that influence the performance of financial intermediaries is critical not only to the management of these institutions but also to other stakeholders and interest groups such as the country's Central Bank, the government as a whole, the banker's association as well as other financial authorities in the country (Ayele, 2012).A well-established financial sector can absorb major financial crisis, changes in the economy and can provide a plat form for strengthening the economic system of the country (Aburime, 2009). To insure sustainable and resilient financial system, appropriate understanding and management of key performance determinants is crucial.

2.5.1 Bank performance evaluation

The performance evaluation methods of banks differed among the researchers. Alshatti, (2016); Erina and Lace, (2013); WuYueh-Cheng, Ting, Lu, Nourani and Kweh, (2016) and Ferrouhi, (2017) investigated the critical determinants that affected the profitability using performance indicator ratios ROA and ROE of the banks by using descriptive and multiple regression model. But researcher like Karr, (2005) suggest ROA and ROE measures largely correlate with each other and both of them provide particularly the same indication of performance associated with the tendency and movement of financial performance or profitability.

Although these measures are widely used, they are criticized and have significant shortcomings that are proposed by different financial analysts and scientists. The main limitations of ROE are as follows: 1) Can induce inaccurate and incorrect results because of a different size of companies and in terms of credit risk (Lindblom and Von Koch, 2002). 2) Face the problems connected with the allocation of assets, equity and net income in case of branch level (Avkiran, 1997). 3) The cost of equity is not taken into account in its calculation, thus it can be seen that bank performance is good when the value to its shareholders is diminishing. However, a major weakness of ratio analysis is that there is a lack of agreement in the literature on the relative importance of various types of indicators. If a particular study wishes to incorporate the related financial indicators to measure technical efficiency in banks, it will lead to an issue of the weight assignment to each indicator. In addition, financial ratio analysis, each single ratio must be compared with some benchmark ratios one at a time while one assumes that other factors are fixed and the benchmarks chosen are suitable for comparison. The financial ratio method can be an appropriate method when firms use a single input or produce a single output.

CAMEL and CAMELS are another ratio based models commonly used for the evaluation of performance and ranking. Researchers such as KS, Thomas and Abraham, (2018) examined the economic sustainability of the biggest public sector banks in India using CAMEL model during the period 2013-14 to 2015-16.Thiagarajan, (2018) also analysed the performance of five major commercial banks in Belize during the period of 2008-2015 using CAMEL approach. Moreover, Zagherd, and Barghi, (2017) performed an empirical study on the performance evaluation of Iranian banking industry through CAMELS framework.

Financial ratio analysis has been the ultimate tool for assessing the financial performance of organizations. However, given the increasing complexities in business operations in recent times, there is increasing shift to alternative methods that takes a multi-dimensional approach and combine several indicators to assess the financial performance of an organization (Aidoo and Mensah, 2017). AHP is one of the well-known and the most widely exploited decision making methods in cases when the decision (the selection of given alternatives and their ranking) is based on several attributes used as criteria. The application of AHP in banking performance has been research interest after the late 1990's and most of the significant applications of AHP are found after 2000. As Stankevičienė and Mencaitė, (2012) put it, AHP has got wider acceptance because of the fact that it allows considering financial and non-financial measures in the evaluation process, which is very important because the business of financial institutions is very complex, and therefore it is not enough to take into account only financial measures.

Researchers such as Bhandari, (2014) explored the determinants of performance exposed by the financial ratios and determine the financial performance of banks in Nepal through AHP based on their financial characteristics. Lu, Wang and Lee, (2013) in their study used (AHP) to evaluate bank's operation risk rating in various stressed scenarios and to prioritize rating items. Cehulic, Hunjak and Begicevic, (2011) have used financial ratios into four groups Balance Sheet Ratios, Income Statement Ratios, Profitability Ratios and Market Ratios and several subgroups to analysed banks in Croatia by Analytical Hierarchy Process. Stankevičienė and Mencaitė, (2012) also used (AHP) model, and to evaluate the performance of banks in Lithuania. The researchers used three main criteria to evaluate the performance of banks: customer's perspective, financial ratios and qualitative evaluation. Overall, the performance of banks was investigated using 22 criteria. And the research concluded smaller banks were falling behind the

banks that were managing solid assets and controlling a significant part of the market asserting bank size significantly affects performance. Bhattarai, (2016) also convey the imperativeness of the ability of integrated or holistic decision analysis, putting subjective and objective information on the single framework for decision analysis in financial institutions in Nepal.

Researchers also used DEMATEL frequently to evaluate the performance of different complex systems and define influence relationships such as: creating a model for sustainable consumption and production (Luthra, Govindan, Kannan, Mangla and Garg, 2017); evaluating CRM partners (Büyüközkan, Güleryüz and Karpak, 2017); defining critical success factors (Zhou, Shi, Deng and Deng, 2017) and evaluation of performance (Supeekit, Somboonwiwat and Kritchanchai, 2016).

Although these performance measuring techniques appear to be powerful and flexible, recent studies started using a combination of MDCMs to reveal better results. The combination of MCDM tools benefits researchers to fill gaps of one tool by another.

For instance AHP is a decision making technique that helps decision-makers to set priorities and select the best alternative but it has its own drawbacks. AHP cannot deal with interconnections among the decision factors at same levels, because the decision framework in the AHP assumes a one-way hierarchical relationship between decision levels. In many issues that interactions among the decision variables exist, AHP is not effective to use on its own (Isik, 2007).

Researchers such as Rezaei and Ketabi, (2016) identified the criteria and their coefficients used for financial performance evaluation of private banks using fuzzy AHP method. After that, they evaluated financial performance of Iran private banks and ranked them using TOPSIS method. Guru and Mahalik, (2019) similarly used a combination of combination of AHP, TOPSIS, and Grey Relational Analysis for efficiency calculation of different public sector banks in India. AHP is used to determine the weight criteria and Grey Relational Analysis and TOPSIS are used to rank the bank performances.

2.5.2 Insurance company performance evaluation

Previous studies dwelling on key insurance performance indicators that have been documented in the academic literature. Almajali, Alamro and Al-soub, (2012) carried out a study to examine and identify the factors affecting the financial performance of Jordanian insurance companies during the period 2002 to 2007. ROA was used as the dependent variable while leverage, liquidity, age, size and management competence index were independent variables. The results

of regression analysis revealed that liquidity, leverage, size of the company and management competence index have a significant and positive effect on the financial performance of Jordanian insurance companies. Results also suggest that there is no significant relationship between the age of the company and performance. Burca and Batrinca, (2014) investigated the factors that affect the financial performance of 21 insurance companies operating in the Romanian insurance market during the period 2008-2012. For this purpose, the explanatory variables used were financial leverage in insurance, company size, number of years of operating in the Romanian market, growth of gross written premiums, equity, total market share, diversification, underwriting risk, investment ratio, reinsurance dependence, retained risk ratio, solvency margin, and growth of GDP per capita. ROA was utilized as an indicator of company performance. By applying panel data techniques, the authors showed that the major determinants of financial performance in the Romanian insurance market are financial leverage in insurance, company size, growth of gross written premiums, underwriting risk, risk retention ratio, and solvency margin.

In a more recent study Shahnawaz, (2018) analysed performance of Indian insurance companies using AHP score using five criterion (premium, benefits, productive diversity, customer service, distribution network) concluding the most significant criterion being premium and benefits. Similarly Valahzaghard and Ferdousnejhad, (2013) used analytical hierarchy process (AHP) and factors analysis (FA) to rank insurance companies using four criterion (capital adequacy, quality of earning, quality of cash flow and asset quality) and results indicated that capital adequacy and quality of earning taking higher weight of importance and quality of cash flow and quality of asset covering the rest. On a study conducted in Ethiopia Sambasivam and Ayele, (2013) investigated performance of Insurance companies using firm specific factors (age of company, size of company, volume of capital, leverage liquidity ratio, growth and tangibility of asset) on profitability proxied by return on asset. Findings concluded that growth, leverage, volume of capital size and liquidity to be important determinant factors of profitability. While growth, size and volume of capital are positively related with profitability others have negative relationship. Moreover, Mandić, Delibašić, Knežević, and Benković, (2017) analysed the efficiency of insurance companies in Serbia using fuzzy analytical hierarchy process to give criteria weight of importance to determinant factors (equity and reserves, business assets, provision and liabilities, financial incomes and cost of insurance) and used TOPSIS method to rank companies

accordingly. Findings indicated that financial parameters, criteria such as equity and reserves and business assets have proven to be the most important vectors of weights of 0.345 and 0.274, followed by the criteria financial income of 0.202, provisions and liabilities with 0.148 and costs of insurance with 0.029.

Due to the uncertainty and complexity of the global market, as well as increase in the flow of information are major obstacles for accurate performance measurement. In such circumstances, the traditional performance measurement does not give satisfactory results. However, the fuzzy approach has been successfully used to overcome this problem (Mandić, et.al, 2017).

Table 2.1: Summary of Empirical Literature

Author(s)	Focus of study	Methodology and adopted model	Key findings
Capital market development and bank performance			
Deidda and Fattouh, (2008)	Analyse the interaction between bank and market finance.	multiple regression model by applying panel data techniques	Concluded bank and stock market development have a positive effect on growth but the growth impact of bank development is lower the higher is the level of the stock market. Inferring their interaction negatively influences growth.
Mattana and Paretti, (2012)	Analysed 45 countries on a panel data to identify relationship of stock market development and banking liquidity.	Neoclassical growth model	Found evidence that one unit increase in an index of securities market liberalization leads to a drop in the bank liquidity ratio between 15 and 22%. Concluding market capitalization significantly affects bank liquidity.
Mogbolu and Tizhe, (2017)	Analysed SSA countries And investigated the relationship between stock market and banks.	multiple regression model by applying panel data techniques	Concluded that liquidity of stock market has a negative effect on bank efficiency using a specific lending –deposit spread linkage.
Nyasha and Odhimbo, (2015)	To examine relationship between stock market development and bank based financial system.	Autoregressive distributed lag bounds testing approach.	Identified bank based financial system and stock market development does not show a positive relationship towards each other's development.
Odhimbo, (2010)	To examine relationship between stock market development and bank based financial system.	Autoregressive distributed lag bounds testing approach.	Concluded they have a distinct positive relationship.
Osono and Osamo, (2014)	To examine empirically the interaction of banks and capital markets in the Kenyan financial system.	multiple regression model by applying panel data techniques	They found a complementary and co-evolving relationship between the bank and the capital market in the Kenyan financial structure, as though it is a bank-based economy.
Shamki and Sayari, (2016)	Analysed impact of stock market developments on the profitability measures in Jordanian banking sector.	multiple regression model by applying panel data techniques	Concluded market capitalization variable has negative and significant influence on ROA, but it has significant positive influence on ROE; trading volume has strongly significant and positive influence on both ROE and ROA, suggesting that trading volume is the determinant factor for the bank's profitability. And finally, concluded that the ROE is a more superior measure of profitability to ROA.
Al Shubiri and Jamil, (2017)	Focused on empirical study conducted in	Ordinary least square	In conclusion stated market concentration measures have a significant impact on

	Oman investigating the relationship between stock market and banks.		interest rate spread of banks among many other things.
Capital market development and insurance performance			
Banks and insurance companies' performance indicators evaluation.			
Almajali, Alamro and Al-Soub, (2012)	Carried out a study to examine and identify the factors affecting the financial performance of Jordanian insurance companies during the period 2002 to 2007. ROA was used as the dependent variable while leverage, liquidity, age, size and management competence index were independent variables.	multiple regression model by applying panel data techniques	The results of regression analysis revealed that liquidity, leverage, size of the company and management competence index have a significant and positive effect on the financial performance of Jordanian insurance companies. Results also suggest that there is no significant relationship between the age of the company and performance.
Alshatti, (2016)	To investigating the critical determinants that affected the profitability of the commercial banks in Jordan.	Descriptive and econometrics analysis approach.	Capital adequacy, capital and leverage positively effect on the banks' profitability and the variable of assets quality negatively effects on the banks' profitability.
Bhandari and Nakarmi, (2014)	Explored the determinants of performance exposed by the financial ratios and determine the financial performance of commercial banks in Nepal.	By using analytical hierarchy process AHP based on their financial characteristics.	Based on Pair wise Comparison of the Financial Criteria's and Sub Criteria. It was seen that Liquidity in Banks (W= 0.311) Capital Adequacy (W=0.216) Asset Quality (W=0.185) Efficiency (W=0.149) and Profitability (W=0.139).
Burca and Batrinca, (2014)	Investigated the factors that affect the financial performance of 21 insurance companies operating in the Romanian insurance market during the period, 2008-2012.	Multiple regression model	Authors showed that the major determinants of financial performance in the Romanian insurance market are financial leverage in insurance, company size, growth of gross written premiums, underwriting risk, risk retention ratio, and solvency margin.
Cehulic, et..al., (2011)	Used financial ratios into four groups Balance Sheet Ratios, Income Statement Ratios, Profitability Ratios and Market Ratios and several subgroups to rank banks in Croatia.	Analytical Hierarchy Process	Ranking showed that in the case of comparing 15 largest banks in Croatia according to the total value of assets on 30th June 2009, the Volksbank d.d. is the best business bank from the standpoint of the central bank.
Erina and Lace, (2013)	To determine the impact of the external and internal factors of bank performance on the profitability indicators of the Latvian commercial banks.	Descriptive method and correlation and regression analyses	Profitability has had a positive effect on operational efficiency, portfolio composition and management, while it has had a negative effect on the capital and credit risks, as measured according to ROA, while according to ROE, positive influence is exerted on composition of the capital portfolio and negative – on operational efficiency and credit risk. With regard to macroeconomic indicators, the authors have revealed that GDP has a positive impact on profitability as measured by ROA and ROE

Ferrouhi, (2017)	To define long-term determinants of Moroccan commercial banks performance.	Johansen cointegration test	Long-term performance of Moroccan commercial banks depends on deposits, short-term, long-term and funding liquidity, the size of the bank and its square, internal and external funding, deposits interest rates and foreign direct investments.
Stankevičienė and Mencaitė, (2012)	To check AHP adaptation to evaluate performance of banks in Lithuania	Analytical Hierarchy Process	Concluded the appropriateness of the methodology to evaluate bank performance.
Mandić, et.al, (2017)	Analysed the efficiency of insurance companies in Serbia to give criteria weight of importance to determinant factors (equity and reserves, business assets, provision and liabilities, financial incomes and cost of insurance)	Using fuzzy analytical hierarchy process (FAHP) and used TOPSIS method to rank companies accordingly.	Findings indicated that financial parameters, criteria such as equity and reserves and business assets have proven to be the most important vectors of weights of 0.345 and 0.274, followed by the criteria financial income of 0.202, provisions and liabilities with 0.148 and costs of insurance with 0.029.
Sambasivam and Ayele (2013)	Investigated performance of Ethiopian Insurance companies using firm specific factors (age of company, size f company, volume of capital, leverage liquidity ratio, growth and tangibility of asset) on profitability proxied by return on asset..	multiple regression model	Findings concluded that growth, leverage, volume of capital size and liquidity to be important determinant factors of profitability. While growth, size and volume of capital are positively related with profitability others have negative relationship.
Shahnawaz (2018)	Analysed performance f of Indian insurance companies using five criterion (premium, benefits, productive diversity, customer service, distribution network)	Analytical hierarchy Process (AHP)	Concluding the most significant criterion being premium and benefits.
Stankevičienė and Mencaitė (2012).	To investigate the performance of Lithuanian commercial banks.	Analytical Hierarchy Process (AHP) model	The performance of banks can be influenced by their size.
Valahzaghard and Ferdousnejhad (2013)	Ranking performance of insurance companies using four criterion (capital adequacy, quality of earning, quality of cash flow and asset quality)	Analytical hierarchy process (AHP) and factors analysis (FA)	Results indicated that capital adequacy and quality of earning taking higher weight of importance and quality of cash flow and quality of asset covering the rest
WuYueh-Cheng et al., (2016)	Performance evaluation and earning management using a sample of ASEAN commercial banks.	Regression and frontier analysis	An efficiency analysis reveals that Singaporean banks obtained the highest overall and profitability efficiencies, while Bruneian banks had the lowest rates of banking performance. In the stage of managerial efficiency, the most inefficient banks are those of the Philippines, whereas the greatest level is related to Malaysian banks. A frontier projection analysis

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2.6 Conceptual framework

This conceptual frame work demonstrates the research's attempt which tries to investigate the possible interaction between performance indicators of each financial system towards the upcoming capital market performance indicators. This study will identify the weight of importance of each indicator to measure performance of financial institutions and will try to reveal the potential influence of capital market performance indicators on each weighted performance indicators.

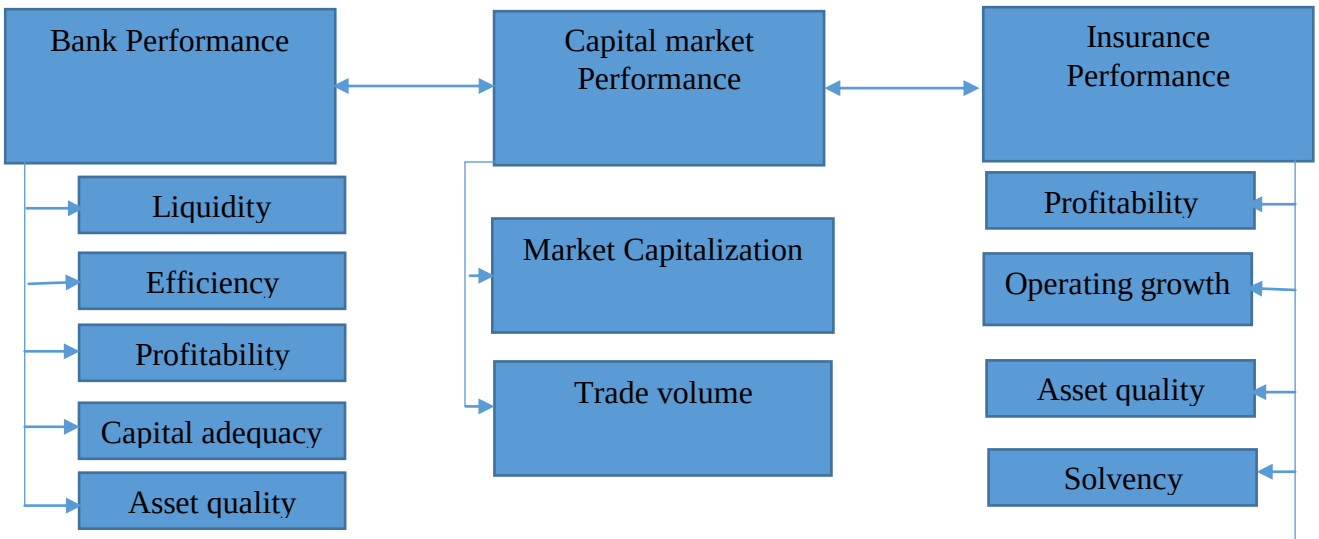


Figure 2.1. Conceptual frame work

CHAPTER THREE

METHODOLOGY OF THE STUDY

3.1 Introduction

This chapter is concerned with the overall plan, approach and design of the study, the purpose of the study, data sources and types, methods and procedures of data collection.

3.2 Research Approach

This paper used sequential and quantitative dominated mixed approach to identify and rank financial institution performance measures and study interdependence with capital market development.

3.3 Research Design

The study used descriptive, evaluative and exploratory designs. The descriptive design was employed to capture existing financial institution performance trends and patterns. This study also utilized evaluative design to examine financial institution performance using AHP and exploratory design to analyse financial institution performance interplay with capital market development using DEMATEL.

In this study, Multi Criteria decision making methods were used. In the first step with review of the literature and interviews with experts in the banking and insurance industry, key performance indicators of banks and insurance companies in Ethiopia financial industry were extracted. Model of analytic hierarchy process has been used to determine weight of each of the Criteria. The correlation matrix of the criteria were designed and distributed among 12 experts in the banking and 12 experts in the insurance industry, and with the consensus of expert opinions, pairwise comparisons questionnaire based on the analytic network process filled and completed by the experts. Then using analytic hierarchy process (AHP), the criteria weights were extracted. It should be noted that to analyse data and calculate ranks, Microsoft excel has been used. Here, the first phase of the study is completed.

The second step includes verifying inter relationship of variables using Decision-Making Trial and Evaluation Laboratory (DEMATEL). This study used the DEMATEL technique to build a pairwise influential network relation map (INRM) to detect the interrelationships among evaluation dimensions and criteria. In addition, the DEMATEL technique can identify the level of influence of each criterion over others. The values of these influence levels can be used as the basis of determining weights of criteria to derive relative importance in the system.

3.3.1 Definition of Study Variables bank performance indicators

Liquidity

Liquidity measures the bank's ability to meet its current obligation. Banks remain liquid by deposit mobilization and earn profit by extending credit from the obtained resource. Therefore banks should be liquid enough to meet depositor's payment demand when needed. The ratios used to evaluate liquidity are,

a. Liquid asset to Total asset (LA/TA): it measures the overall liquidity position of the bank. The higher the ratio the more liquid the banks position is.

b. Liquid assets to demand deposits (LA/DD): This ratio measures the ability of bank to meet the demand from depositors in a particular year. To offer higher liquidity for them, bank has to invest these funds in highly liquid form.

c. Liquid assets to total deposits (LA/TD): This ratio measures the liquidity available to the total deposits of the bank.

Efficiency

The ratio in this segment involves subjective analysis to measure the efficiency and effectiveness of banks. The ratios used to evaluate management efficiency are described as:

a. Total advances to total deposits (TAd./TD): This ratio measures the efficiency and ability of the bank in converting the deposits available with the bank excluding other funds like equity capital in to high earning advances.

b. Earnings before Tax (EBT) to Total Revenue (TR): It rates efficiency in reducing costs that would be incurred to generate bank's revenue.

c. Total revenue per employee (TR/No.Em): it shows the productivity of human force of bank. It is used as a tool to measure the efficiency of employees of a bank in generating business for the bank. Higher the ratio, the better it is for the bank.

Profitability

Profitability explains banks' sustainability and growth. The main components of this ratio are,

a. Profit before tax to equity (ROE): measures the efficiency in utilizing the bank equity. The higher return on equity the more efficient in equity utilization.

b. Profit before tax to asset (ROA): This ratio measures return from assets employed or the efficiency in utilization of assets. The higher return on asset the more efficient in asset utilization.

c. Interest income to Total Revenue (II/TR): Shows the share of banks interest income earned from advances out of the total revenue.

Capital adequacy

Capital Adequacy reflects the overall financial position of the bank. It also indicates whether the bank has enough capital to absorb unforeseen losses having sufficiency of equity to absorb any unexpected shocks that a bank may face. Capital Adequacy ratio acts as an indicator of bank leverage. The main components of this ratio are,

a. Total debt to Total asset (TD/TA): This ratio indicates the degree of leverage of a bank. It indicates how much of the bank business is financed through debt and how much through equity. Higher ratio indicates less protection for the creditors and depositors in the banking system.

b. Total equity to Total asset (TE/TA): This ratio of shareholders equity to total asset.

c. Total capital to Risk-Weighted Assets (TC/RWA): it indicates the riskiness of asset employed by the bank.

Asset quality

Asset quality is one dimension that can affect performance of a given bank. The dimension of asset quality is an important factor that helps the bank in understanding the extent of risk of loss due to a debtor's failure to make repayment of loan (Olweny and Shipho, 2011 and Baral, 2005). Default occurs when a debtor unable to fulfil legal obligations according to the contract, or has violated a loan condition of the debt contract, which might occur with all debt obligations including bonds, mortgages, loans, and promissory notes. The main components of this ratio are,

a. Allowance for doubtful loans to total assets (ADL/TA): This ratio discloses the efficiency of bank in assessing the credit risk and, to an extent, recovering the debts. It is the ratio of allowance for doubtful loans and total assets.

b. Loan loss reserves to outstanding loans (LLR/OL): It is the most standard measure of assets quality measuring the net non-performing assets as a percentage to net advances.

c. Non-Performing Loans to total loans outstanding(NPL/TLO): this measure the loss incurred due to poor loan quality.

Table 3.1 : List of performance criteria and sub criteria of banks

Goal	criteria	Sub criteria
Bank performance	C1 LIQUIDITY	L1 Liquid asset / total asset
		L2 Liquid asset / demanded deposits
		L3 Liquid asset / total deposit
	C2 EFFICIENCY	E1 Total advances / total deposits
		E2 Earnings before Tax / Total Revenue
		E3 Total revenue/total number of employee
	C3 PROFITABILITY	P1 Profit before taxes / equity
		P2 Profit before taxes / asset
		P3 Interest income / Total Revenue
	C4 CAPITAL ADEQUACY	C1 Total debt / total asset
		C2 Total equity/total asset
		C3 Total capital / risk weighted asset
	C5 ASSET QUALITY	A1Allowance for doubtful loans / total assets
		A2Loan loss reserves / outstanding loans
		A3Non –performing loans/ outstanding loans

3.3.2 Definition of Study Variables stock market performance measures

Market Capitalization

Market Capitalization refers to the value of a company that is traded on the stock market, calculated by multiplying the total number of shares by the present share price (Laeven, 2014). This entails the aggregate value of a company's stock. It mainly indicates any movements which are made by accessing the total value of stocks in a particular stock market and aggregating the market value of the quoted stocks. The market capitalization is not constant as it moves with movement in share prices. As the size of monetary system increases it generates more opportunities for profitable operation thus boosting capital market development.

Market capitalization= Current market price per share* Total number of outstanding shares

Trade volume /Liquidity

Liquidity is the degree to which an asset or security can be bought or sold in the market without affecting the asset's market price. Liquidity is characterized by a high level of trading (buying and selling) activity. Assets that can be easily bought or sold are known as liquid assets. Liquidity is the ability to convert an asset to cash quickly also known as "marketability". Liquidity is often calculated using liquidity ratios. Liquidity is a main factor to consider for the investor and issuer. Liquidity is also the benchmark for each capital market. Investors interested in capital market will focus on the liquidity to engage in any kind of transaction around the globe (Ruecker, 2011).

Trade volume= monthly birr volume / sum of absolute value of daily percentage change in stock price.

Table 3.2: List of performance criteria and sub criteria of stock market

Goal	criteria	Sub criteria
Stock market performance	C1 MARKET CAPITALIZATION	MC= Current market price per share* Total number of outstanding shares
	C2 TRADEVOLUME /LIQUIDITY/	TV= (monthly birr volume) / (sum of absolute value of daily percentage changes in stock price)

3.3.3 Definition of Study Variables insurance performance measures

Profitability

Profitability indicates the enterprise capital appreciation profitability, including net assets yield rate, total return on assets, income margins, profit margins and return on investment.

Capital profit margin (net assets yield) = net profit / net assets average balance * 100%

Asset profit margin (total return on assets) = total profit / total assets * 100%

Income profit = operating profit / operating income * 100%

Expenditure margin = operating profit / operating expenses * 100%

Return on investment=net profit/total investment *100%

Operating growth

Operating growth mainly includes the state-owned capital preservation and appreciation rate, profit growth rate, economic profit margins.

Premium growth rate = (Gross Premium Written (Y1) - Gross Premium Written (Y0))/ Gross Premium Written (YO) x 100%

Profit growth rate = (total profit for the year - total profit for the previous year) / total profit for the previous year × 100%

Economic profit margin = (net profit - average balance of net assets × capital cost) / net assets average balance × 100%

Asset quality

Asset quality is an important part of the enterprise asset management level and the use of efficiency. Mainly including tangible asset, recognized asset rate and accounts receivable ratio.

Tangible asset rate= tangible asset/ total asset*100%

Approved asset rate = recognized assets / total assets × 100%

Accounts receivable ratio = (premium payable + interest receivable + other receivables) / total assets × 100%

Solvency

Solvency refers to the ability of an enterprise to repay short-term and long-term debt. Its strength is the main embodiment of the enterprise's economic strength and financial condition, and also an important measure to measure whether the enterprise is stable or not. The main indicator is solvency adequacy ratio.

Solvency adequacy ratio = (Net income + Depreciation and amortization) / total liability × 100%

Management soundness

Sound management is one of the most important factors behind financial institutions' performance. Indicators of quality of management, however, are primarily applicable to individual institutions, and cannot be easily aggregated across the sector.

Premium per employee= Premium / No of employees

Asset per employee= Asset /No of employees

Table 3.3: List of performance criteria and sub criteria of insurance companies

Goal	criteria	Sub criteria
Insurance company performance	C1 PROFITABILITY	P1Net asset yield
		P2 Total return on asset
		P3 Income margins
		P4 Profit margin
		P5 Return on investment
	C2 OPERATING GROWTH	O1 premium growth rate
		O2 profit growth rate
		O3 economic profit margins
	C3 ASSET QUALITY	A1 tangible asset rate
		A2 recognized asset rate
		A3 accounts receivable ratio
	C4 SOLVENCY	S1 solvency adequacy ratio
	C5 MANAGEMENT SOUNDNESS	M1Premium per employee
		M2 Asset per employee

3.4. Target Population

The target population of this study consists of experts in bank, insurance companies as well as intellectuals who studied about capital market and regulatory bodies. The population size is determined by purposive sampling technique. There are 17 banks in Ethiopia two of them are state owned and the rest are private share companies' and17 insurance companies.

Table 3.4: Profile of Ethiopian banks

Item No.	Name of Bank	Year of est.	Paid-up capital (Billion)	Deposit balance (Billion)	Total loans and advances (Billion)	Total asset (Billion)
1	Abay Bank S.C.	2010	0.71	4.83	3.07	6.18
2	Addis International Bank	2011	0.71	2.97	2.03	4.20
3	Awash Bank	1994	2.9	43.45	31.04	55.3
4	Bank of Abyssinia	1996	2.56	25.79	17.99	31.98
5	Berhan International Bank	2010	1.7	12.2	7.2	14.1
6	Bunna International Bank	2009	1.47	9.15	6.84	13.02

7	Commercial Bank of Ethiopia	1963	40	451.8	100.68	565.5
8	Cooperative Bank of Oromias.c.	2005	1.59	25.39	14.71	29.88
9	Dashen Bank	2003	2.2	35.98	23.05	40.32
10	DebubGelobal Bank	2012	0.57	2.15	1.55	3.12
11	Enat Bank	2013	0.97	5.09	3.31	6.48
12	Lion International Bank	2006	1.18	11.63	7.37	14.31
13	Nib International Bank	1999	2.5	25.1	17.5	31.1
14	Oromia International Bank	2008	0.8876	19.9	14.7	23.79
15	United Bank	1998	1.78	19.76	14.86	28.03
16	Wegagen Bank	1997	2.31	20.06	14.78	27.39
17	Zemen Bank	2009	1.12	10.21	4.99	12.43

Source: Each bank web page 2017/18

Table 3.5: Profile of Ethiopian insurance companies

Item No.	Name of Insurance company	Year of Est.	Paid-up Capital (million)	Profit (million)
1	Abay Insurance Company	2010	141.18	56.5
2	Africa Insurance Company S.C.	1994	30	71
3	Awash Insurance Company S.C.	1994	300	128.7
4	Berhan Insurance S.C.	2010	9.7	10
5	Bunna Insurance S.C.	2013	78.8	7
6	Ethiopian Insurance Corporation	1976	1971	698.5
7	Ethio-Life and General Insurance S.C	2008	86	17.76
8	Global Insurance Company S.C.	1997	102.94	21.4
9	Lion Insurance Company S.C.	2007	66.4	14.8
10	Lucy Insurance S.C.	2012	104	26
11	National Insurance Company of Ethiopia S.C.	1995	302	117
12	NIB Insurance Company	2002	247.99	58.2
13	Nile Insurance Company S.C.	1995	188.1	100.7
14	Nyala Insurance Company S.C.	1995	259	122.2
15	Oromia Insurance Company S.C.	2009	155.2	81.5
16	The United Insurance S.C.	1994	372.95	60.29
17	Tsehay Insurance S.C.	2012	77	11.6

Source: Each bank web page 2017/18

3.5 Data type and source

Data for the study was collected using both primary and secondary sources. The primary data were obtained through design of questionnaires and interviews directed to a bank top management officers, insurance top management officers and researchers who studied about capital market development in Ethiopia. The secondary data were sourced from the published

and unpublished sources such as credible web pages, books and different peer reviewed published journal articles. The secondary data is used to get an insight of the problem and considered for content validation of findings obtained from primary data.

3.6 Data Collection Method and Design

Mixed data collection methods were adopted with sequential manner. Qualitative interview followed by quantitative survey questionnaire. Survey research is a commonly used method of collecting information about a population of interest. There are many different types of surveys, several ways to administer them, and many methods of sampling. One of the key features of a survey research is questionnaires: a predefined series of questions used to collect information from individuals. After evaluating the above methods this study employed assisted self-administered questionnaires to generate the required information for analysis, since each person (respondent) were asked to respond to the same set of questions. This provides an efficient way of collecting reliable data from a sample prior to quantitative analysis.

Furthermore, an interview which consisted 8set of questions was administered on 7respondents from bank, insurance and experts with exposure of global capital market. The interviews were conducted in order to guide refinement on the questionnaires and fill the gap in the responses received from the questionnaires. A set of AHP and DEMATEL questionnaire were constructed accordingly and analysed through Microsoft excel and Matlab.

3.7 Data Analysis

In this section, an integrated method, combined (Decision Making Trial and Evaluation Laboratory) DEMATEL method and (Analytic Hierarchy Process) AHP method were developed. The procedures that are used in the proposed method are described as follows.

The Analytic Hierarchy Process (AHP)

AHP method component is the mathematical model by which the priorities (weights) of elements positioned on the same hierarchy structure level are calculated.

Stankevičienė and Mencaitė, (2012) suggested the adaptation of the AHP model for its help with evaluating financial institutions and their performance by combining different advantages of multi-criteria decision making with a single balanced system. The model also can be considered as the universal one because it can be applied and used by both professional analysts and the clients of a bank as it requires information available in public sources. The AHP model also

helps with revealing bank ranking and recognizing better performing banks and those that need more attention either from supervisory institutions or management in order to improve the current performance. This model also includes external judgment that could help with building a more specific evaluation framework. AHP is used in Complex decision problem solving. The other significance of AHP is: it breaks down a decision-making problem into several levels in such a way that they form a hierarchy with unidirectional hierarchical relationships between levels (De Felice and Petrillo, 2014). The AHP for decision making uses objective mathematics to process the inescapably subjective and personal preferences of an individual or a group in making a decision. With the AHP, one constructs hierarchies or feedback networks, then makes judgments or performs measurements on pairs of elements with respect to a controlling element to derive ratio scales that are then synthesized throughout the structure to select the best alternative (De Felice, 2012). The top level of the hierarchy is the main goal of the decision problem. The lower levels are the tangible and/or intangible criteria and sub-criteria that contribute to the goal. The bottom level is formed by the alternatives to evaluate in terms of the criteria. The modelling process can be divided into different phases for the ease of understanding which are described as follows:

STEP 1: Pairwise comparison and relative weight estimation. Pairwise comparisons of the elements in each level are conducted with respect to their relative importance towards their control criterion. Saaty suggested a scale of 1-9 when comparing two components (see the table below). For example, number 9 represents extreme importance over another element. And number 8 represents it is between ‘‘very strong important” and ‘‘extreme importance” over another element.

Table 3.6: The Saaty (1980) Rating scale

Intensity of importance aij	Definition	Explanation
1	Equal Importance	Two activities contribute equally to the objective
3	Moderate importance	Experience and judgment slightly favour one activity over another
5	Strong importance	Experience and judgment strongly favour one activity over another

7	Very strong or demonstrated importance	An activity is favoured very strongly over another; its dominance demonstrated in practice
9	Extreme importance	The evidence favouring one activity over another is of the highest possible order of affirmation
2,4,6,8	For compromise between the above values	Sometimes one needs to interpolate a compromise judgment numerically because there is no good word to describe it.

For a general AHP application we can consider that A1, A2,…,Am denote the set of elements, while aij represents a quantified judgment on a pair of Ai, Aj. Through the 9-value scale for pairwise comparisons, this yield an [m x m] matrix A as follows:

A=aij=		A_1	A_2	….	A_m
	A_1	1	a_{12}	….	a_{1m}
	A_2	$1/a_{12}$	1	….	a_{2m}
	….	….	….	….	….
	A_m	$1/a_{1m}$	$1/a_{2m}$	….	1

Where, $a_{ij} > 0$ (i, j = 1, 2,..,m),

$a_{ii} = 1$ (i = 1, 2,…,m), and

$a_{ij} = 1/a_{ji}$ (1; 2;…,m).

A is a positive reciprocal matrix. The result of the comparison is the so-called dominance coefficient a_{ij} that represents the relative importance of the component on row (i) over the component on column (j), i.e., $a_{ij}=w_i/w_j$.

The pairwise comparisons can be represented in the form of a matrix. The score of 1 represents equal importance of two components and 9 represents extreme importance of the component i over the component j. In matrix A, the problem becomes one of assigning to the m elements A_1, A_2,…,A_m a set of numerical weights w_1, w_2,…,w_m that reflects the recorded judgments. If A is a consistency matrix, the relations between weights w_i, w_j and judgments a_{ij} are simply given by

$a_{ij} = w_i/w_j$ (for i,j = 1, 2.. m).

If matrix w is a non-zero vector, there is a λmax of Aw = λmaxw, which is the largest eigenvalue of matrix A.

If matrix A is perfectly consistent, then $\lambda maxw = m$. But given that aij denotes the subjective judgment of decision-makers, who give comparison and appraisal, with the actual value (wi/wj) having a certain degree of variation. Therefore, $Ax = \lambda maxw$ cannot be set up. So the judgment matrix of the traditional AHP always needs to be revised for its consistency.

STEP 2: Priority vector. After all pairwise comparison is completed, the priority weight vector (w) is computed as the unique solution of $Aw = \lambda maxw$, where λmax is the largest eigenvalue of matrix A.

STEP 3: Consistency index estimation. Saaty (1990) proposed utilizing consistency index (CI) to verify the consistency of the comparison matrix. The consistency index (CI) and (CR) of the derived weights could then be calculated by:

$CI = (\lambda max - n)/ n-1$

$CR=CI/RI$

In general, if CR is less than 0.10, satisfaction of judgments may be derived.

Decision Making Trial and Evaluation Laboratory (DEMATEL)

Decision Making Trial and Evaluation Laboratory (DEMATEL) method gives a contribution to solving the complex problems. It was developed in 1976 by the Institute of Geneva Battelle Memorial. The main advantage of DEMATEL method in comparison with others is that it is very helpful to evaluate the way and the power of the relationship between the variables (Chen, 2016). The steps of DEMATEL approach are demonstrated below

Step 1: Initial direct relation matrix is generated. This matrix is illustrated in Equation 1. The matrix of the elements in each level are conducted based on the opinions of the experts. There is a suggested scale of 0-4 when comparing two components (see the table below). For example, number 4 represents very high influence on another element. And number 0 represents no influence on another element.

Level of influence	**Definition**
0	No influence
1	Low influence
2	Medium influence
3	High influence
4	very high influence

$$Ak = \begin{bmatrix} 0 \cdots a_{1nk} \\ \vdots \ddots \vdots \\ a_{n1k} \cdots 0 \end{bmatrix} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Step 2: Initial influence matrix is calculated. In this step, the relationship among the elements can be identified.

Step 3: Direct relation matrix is normalized. In this process, Equation 2 is used. In this equation, the term "bij" takes values between 0 and 1.

$$B = [b_{ij}] = A/max\sum^{n}_{j=1} a^{ij} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

Step 4: Total relation matrix is developed which is shown in Equation 3. In this equation, "C" represents total relation matrix and "I" gives information about identity matrix.

$$C = [c_{ij}] = (I - B)^{-1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Step 5: The prominence (D+E) and cause-effect (D-E) values are calculated. For this purpose, Equation 4 and 5 are taken into the consideration.

$$D = [d_{ij}]_1 = [\sum^{n}{}_{j=1} c_{ijij}]_{nx1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

$$E = [e_{ij}]_{1xn} = [\sum^{n}{}_{j=1} c_{ijij}]_{nx1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(5)$$

Step 6: Inner dependence matrix is defined. In this process, entries, which are less than the threshold value, are eliminated. The threshold value can be calculated by using Equation 6.

$$a = \sum^{n}{}_{j=1} \sum^{n}{}_{i=1} n\, c_{/}n^{2} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(6)$$

3.8 Instrument Validity &Reliability

3.8.1Instrument Validity

Validity refers to the degree to which results obtained from the analysis of the data actually represents the phenomena under study. Validity is a matter of degree and not a specific value. In order to check instrument validity, a pilot study was conducted to refine the methodology and test instrument such as a questionnaire before administering the final phase. Issues that were raised by respondents during the interview (expert opinion) were used to correct and refine the questionnaires. The preview of the questionnaire with experts also contributes to avoid any redundancy or error. Moreover, proper detection and approval by the research advisor was adopted to ensure validity of the instruments. Finally, the improved version of the questionnaires were printed, duplicated and dispatched. Quantitative and qualitative analysis were made to ensure the consistency of findings corresponding to each research question.

3.8.2 Instrument Reliability

Reliability is the degree to which a questionnaire will produce the same result if administered again. The test-retest concept was applied to test reliability.

3.9 Ethical issues

In conducting this study, the privacy of participants was kept, and it was disclosed to every participant that the nature of participation is voluntary. The confidentiality of data and the participants' anonymity was be maintained. In all cases, names will remain confidential thus collective names like “respondents” or “study participants” will be used unless the participant are willing to be named.

The researcher will take into account the issues of feasibility and efficiency in relation to gaining access to data and the impact of these on the nature and content of the study questions and objectives. In addition, all sources cited in this study were appropriately acknowledged.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1. Introduction

This chapter explains how the performance indicators of financial institutions were analysed and discusses the results. The performance indicators trend analysis was depicted and discussed to address research question one. Further, the performance indicators were ranked according to their level of importance to address research question two. Moreover, interdependency between performance indicators were established in order to address research question three.

Finlay, this chapter discusses the results of the analysis by triangulating the expert opinion findings with the trend analysis of financial institution performance.

4.2 Performance indicators trend analysis

4.2.1 Bank performance indicators

The trend analysis of bank performance indicators below describes trend of the banking industry as a whole. The data is collected from National Bank of Ethiopia (NBE) in order to reveal the actual movement of performance indicators form 2010-2017 accommodating seven fiscal years (FY).

Liquidity

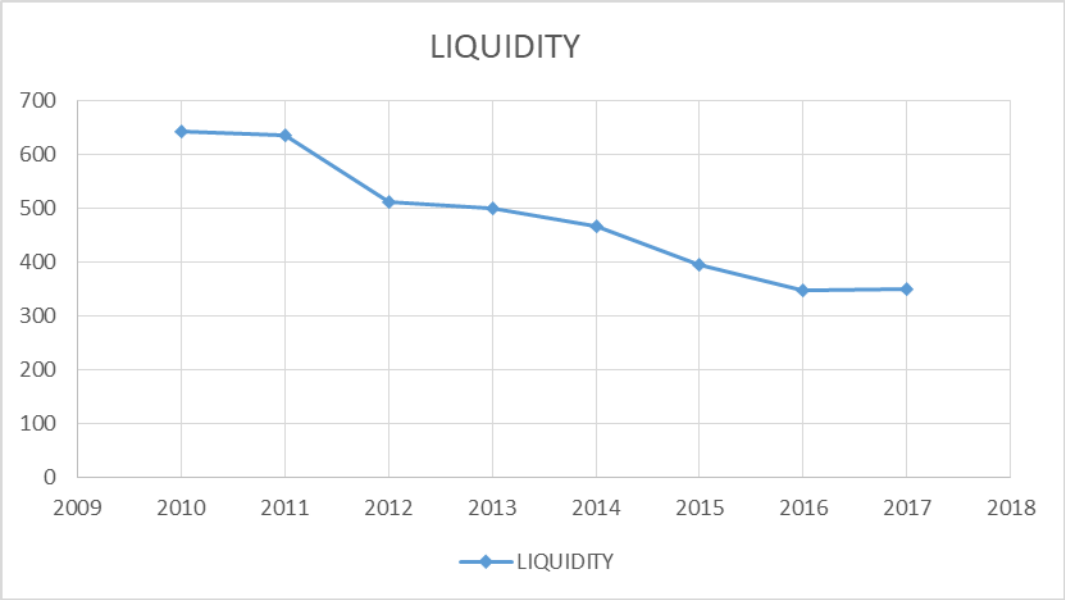


Fig 4.1: Liquidity trend of banking industry.

Liquidity trend of Ethiopian banking industry that is measured by liquid asset to total asset is depicted above. As per NBE's data the liquidity ratio seems to take descending path for the past seven years. This kind of trend in the banking industry exists due to stiff competition in the financial system according to justifications given by scholars. The liquidity trend took a big drop around 2012. On 2011/12 inflation re-emerged when it reached 26.7% from 17.5% the previous year, the real GDP growth declined from 10.7% to 7% the previous year. Thus, the economic development status of the country reflects its pressure on the banking industry. The lowest liquidity position was recorded on 2016 which could be explained by the descending economic growth to 8 present in FY2016 due to drought-related lower agricultural production.

Capital adequacy

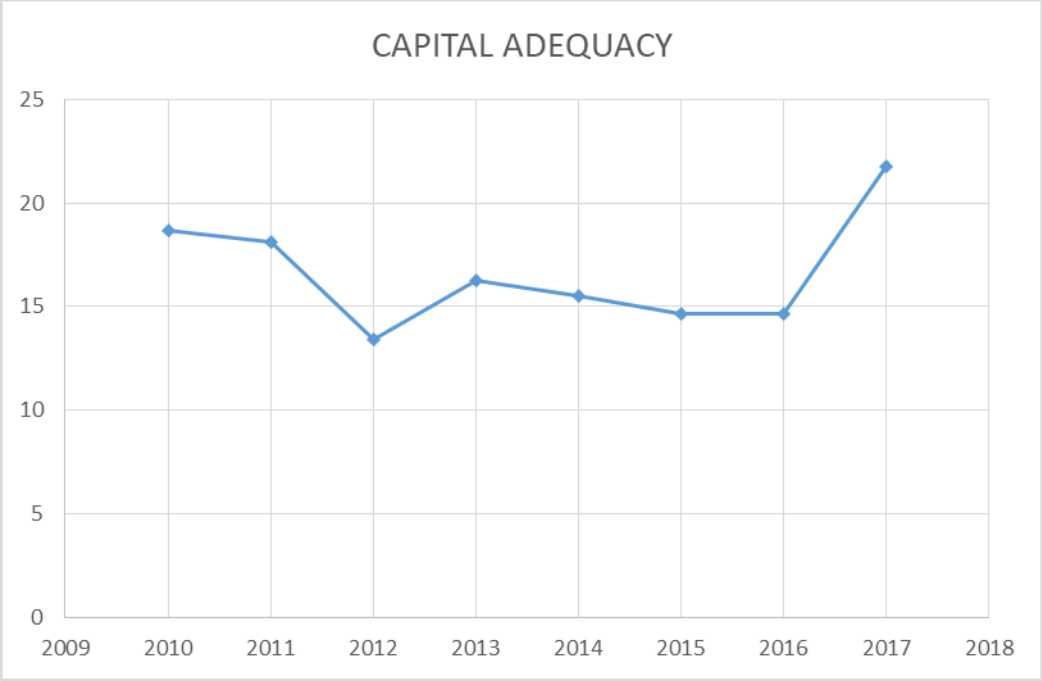


Fig 4.2: Capital adequacy trend of banking industry.

Capital adequacy trend analysis of the Ethiopian banking industry that is measured by total capital to risk weighted asset is shown on the above figure. As per NBE's data capital adequacy ratio picks up on 2017 after a significant drop on 2012 and showing consistency for consecutive years. Capital adequacy is also affected by the economic condition of the country during 2012 and 2016.

Asset quality

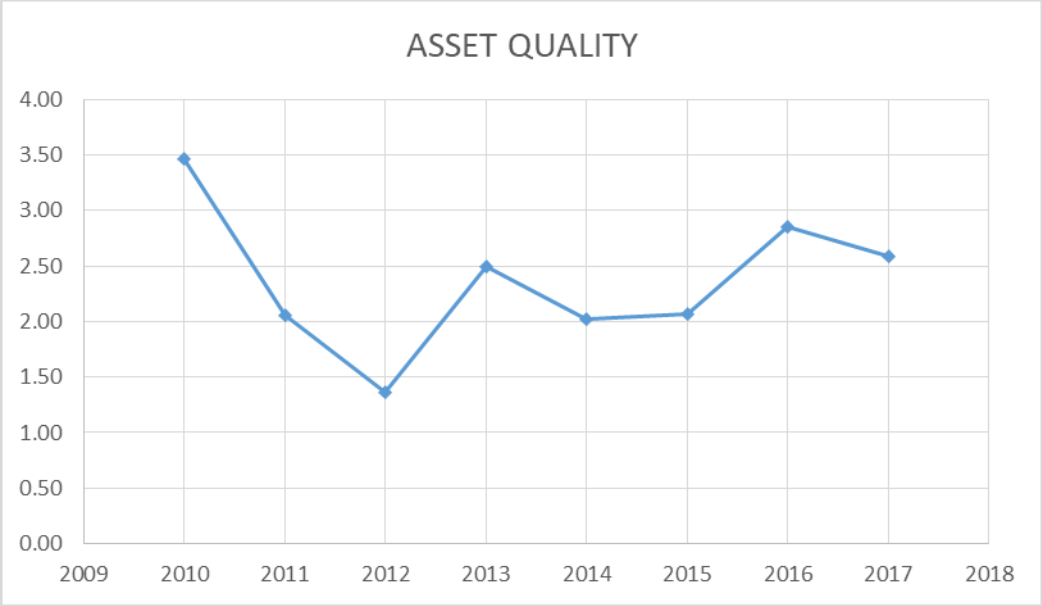


Fig 4.3: Asset quality trend of banking industry.

Asset quality trend analysis of the Ethiopian banking industry that is measured by non-performing loans to total loans outstanding is shown above. As per NBE's data the ratio picked up after dramatic decrease on 2012. After the improvement of credit quality in 2012 the highest asset quality ratio appeared on 2016.

Profitability

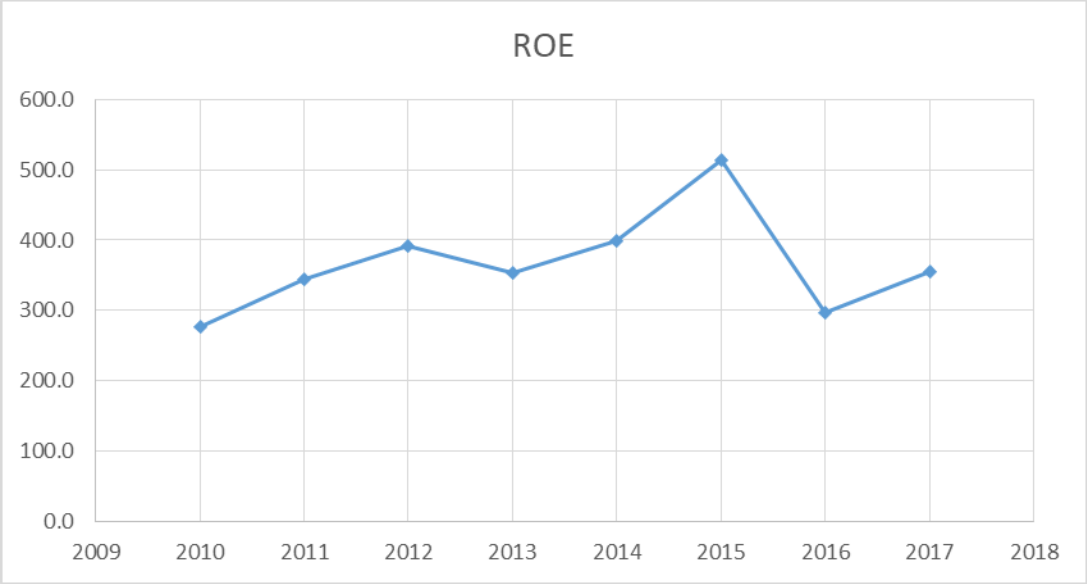


Fig 4.4: Profitability trend of banking industry.

Profitability trend analysis of the banking industry that is measured by ROE is depicted on the above table. As per NBE's data ROE appears to have a gentle rise until 2015 and face dramatic drop on 2016. This could also be explained by the economic development change particularly on that fiscal year.

Efficiency

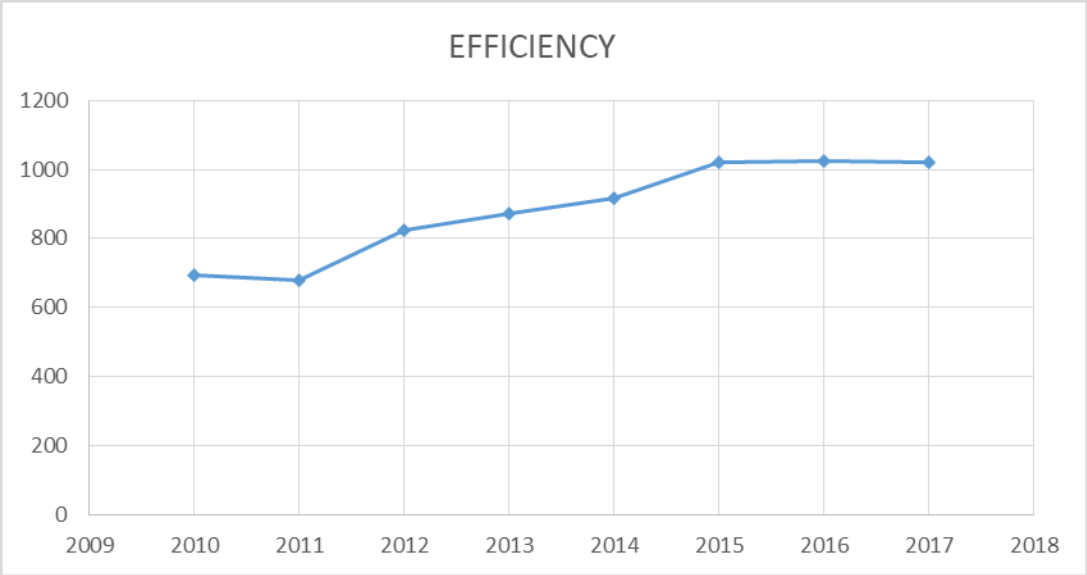


Fig 4.5: Efficiency trend of banking industry.

Efficiency trend of the banking industry that is measured by total advances to total deposits is shown above. As per NBE's data efficiency had a gentle rise until 2015 and remained stagnant after wards. According to expert's this trend could possibly be explained by: the fact that efficiency is considered the least important key performance indicators.

4.2.2 Insurance performance indicators

The trend analysis of insurance performance indicators below describes trend of the insurance industry as a whole. The data is collected from National Bank of Ethiopia (NBE) in order to reveal the actual movement of performance indicators form 2012-2017 accommodating five fiscal years.

Profitability

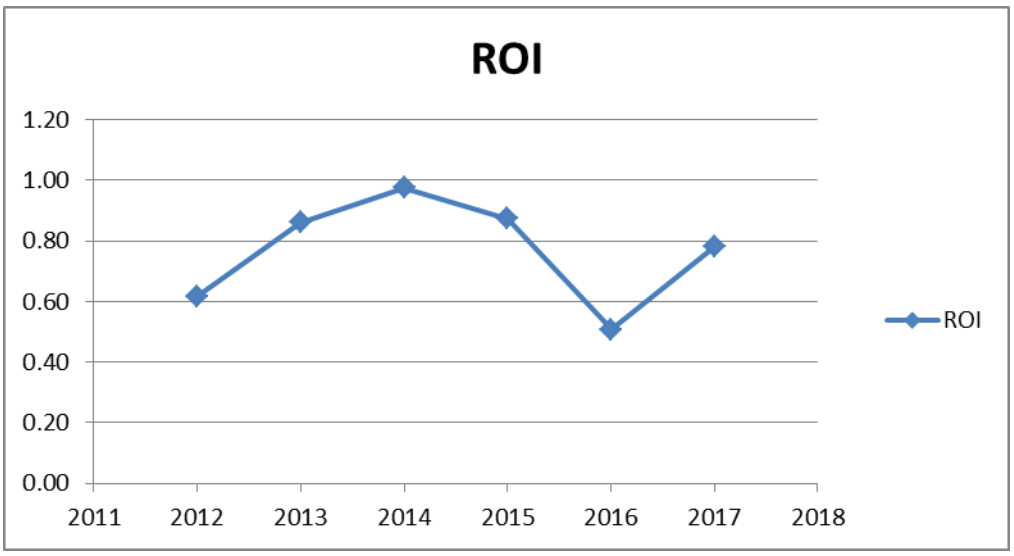


Fig 4.6: Profitability trend of insurance industry.

Profitability trend of Ethiopian insurance industry that is measured by ROI is depicted above. As per NBE's data the ROI seems to take ascending path until 2014 until it faced a sharp decrease reaching its lowest on 2016. 2016 FY is a year with a descending economic growth due to drought-related lower agricultural production with the reflection of pressure on the financial institutions. After wards the ROI picks up comfortably the following year.

Solvency

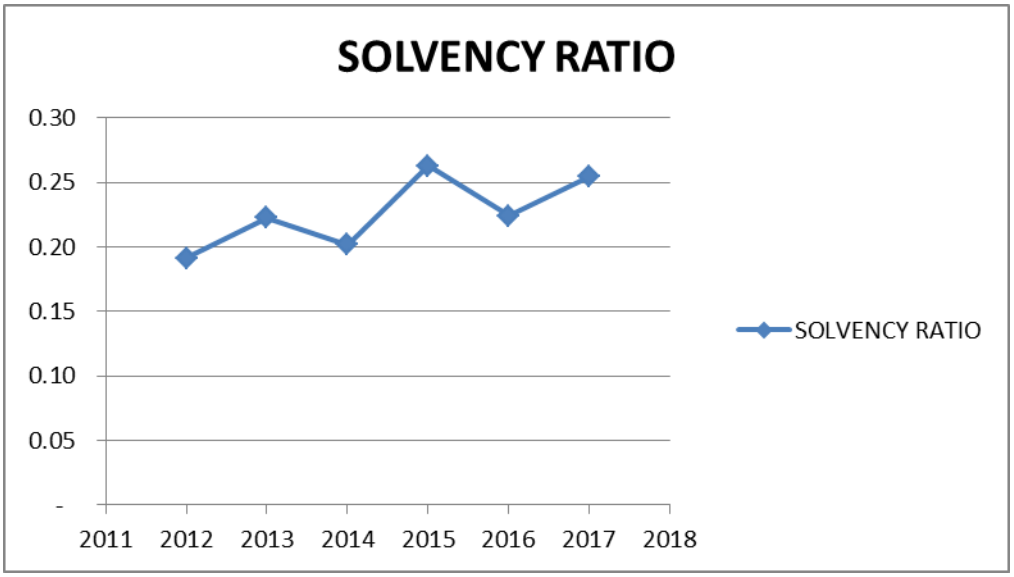


Fig 4.7: Solvency trend of insurance industry.

Solvency trend of Ethiopian insurance industry that is measured by solvency ratio is depicted above. As per NBE's data the solvency ratio took ascending path except on 2014 and 2016.

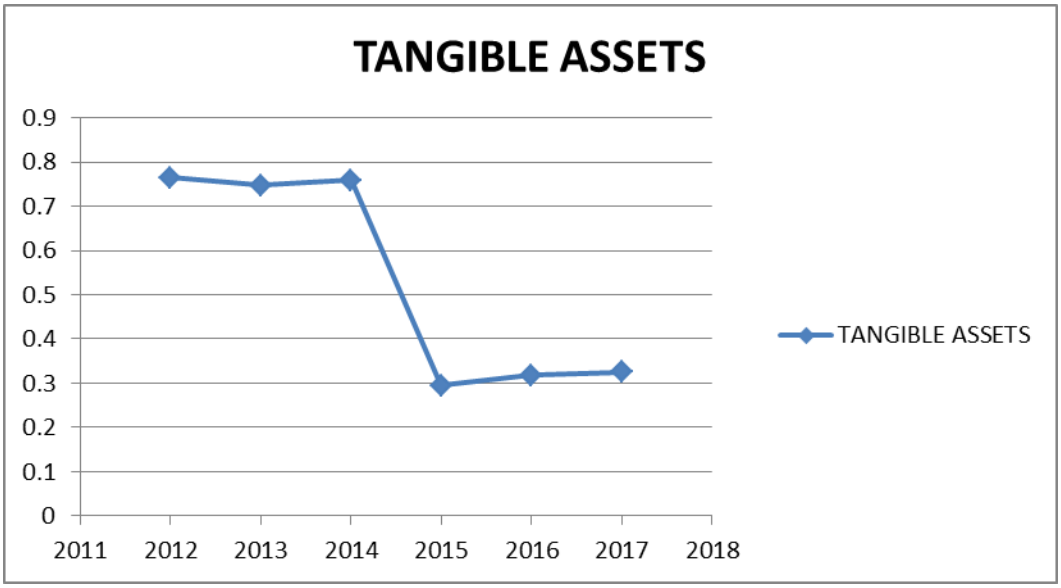


Fig 4.8: Asset quality trend of insurance industry.

Asset quality trend of Ethiopian insurance industry that is measured by tangible asset is depicted above. As per NBE's data the tangible asset ratio faced a sharp fall on 2015 and remained for consecutive years.

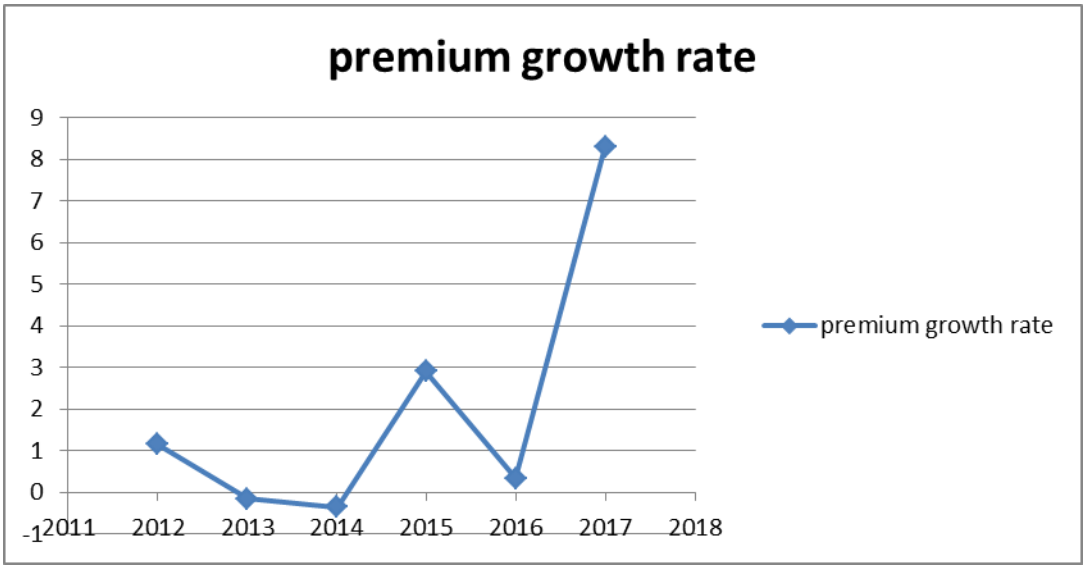


Fig 4.9: Operating growth trend of insurance industry.

Operating growth trend of Ethiopian insurance industry that is measured by premium growth is depicted above. As per NBE's data the premium growth rate had descending trend until 2014 which picked up the next year to go back down on 2016 with a big leap the following year.

4.3 Performance indicators ranking with empirical approaches to making decisions using AHP Application

Accordingly the performance indicators were ranked using AHP. "Analytic Hierarchy Process is a flexible model that will enable individuals or organizations to mould ideas and make their own hypothesis; it also enables people to test solutions, or the results of sensitivity, so as to change information" (Saaty, 1980).

In the thesis, the Judgment matrix calculation method was utilized to rank performance indicators of banks and insurance companies and give criteria weight to each indicator.

4.3.1 Hierarchy Structure of bank and insurance company performance indicators.

"A hierarchy is a more or less faithful model of a real-life situation; it represents our analysis of the most important elements in the situation and of their relationships" (Saaty,1980).

Three level hierarchy structure were established in this thesis, which is target layer, criterion layer and sub criteria layer. Target layer is to rank performance indicators of these financial institutions. Criterion layer consists of five criteria which were replaced by C1, C2, C3, C4 and C5. Sub criterions are grouped under each criterion. In the analytic hierarchy model, straight lines are used to indicate relationship between factors in the left layer to the right layer. If each of the layers are associated with all elements consisted in the right layer, it indicates these two layers have full level relationship. The hierarchy structure is the base for further analysis.

The specific evaluation indicators corresponding model is shown as below:

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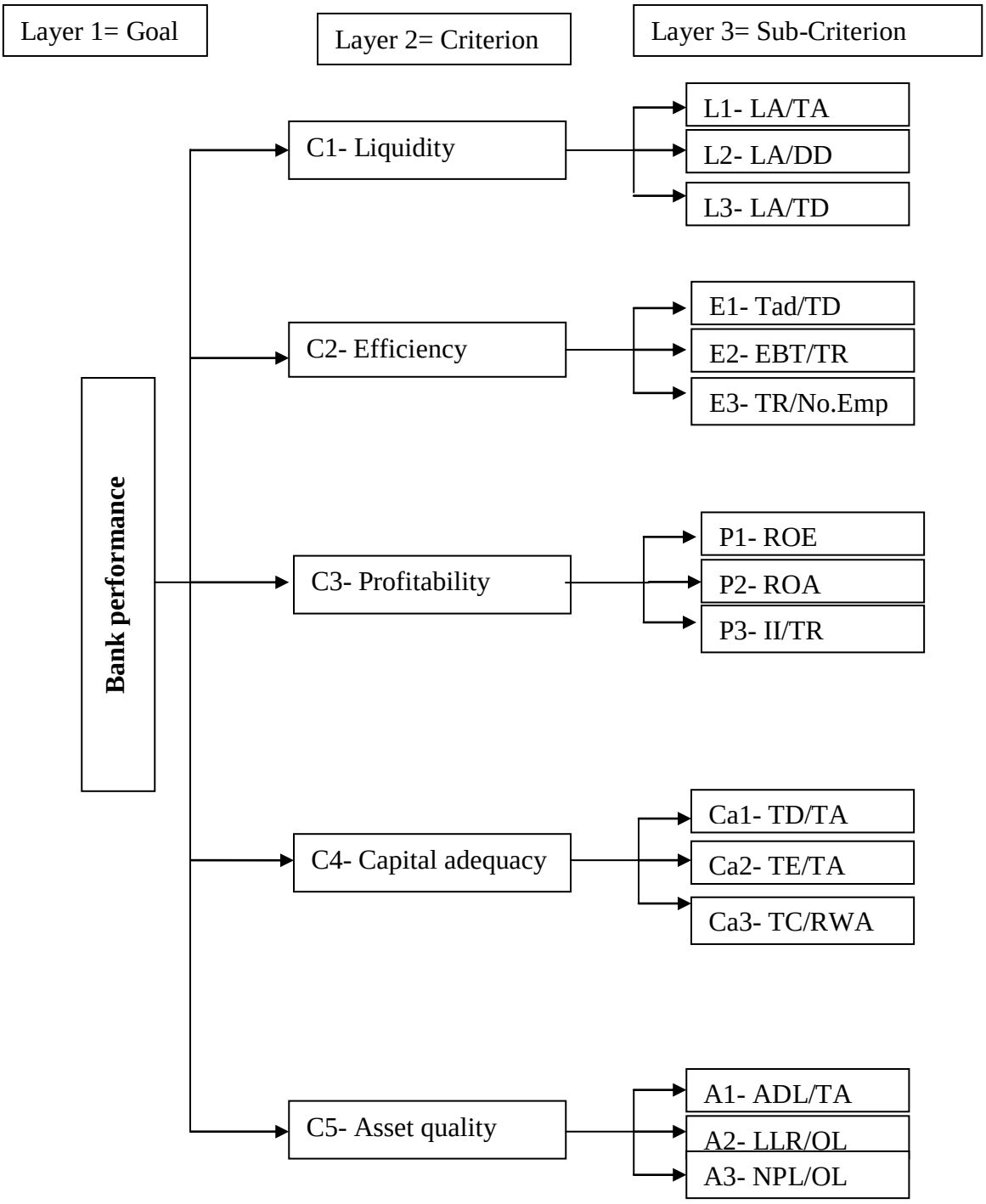


Fig 4.10: bank performance indicator hierarchy structure

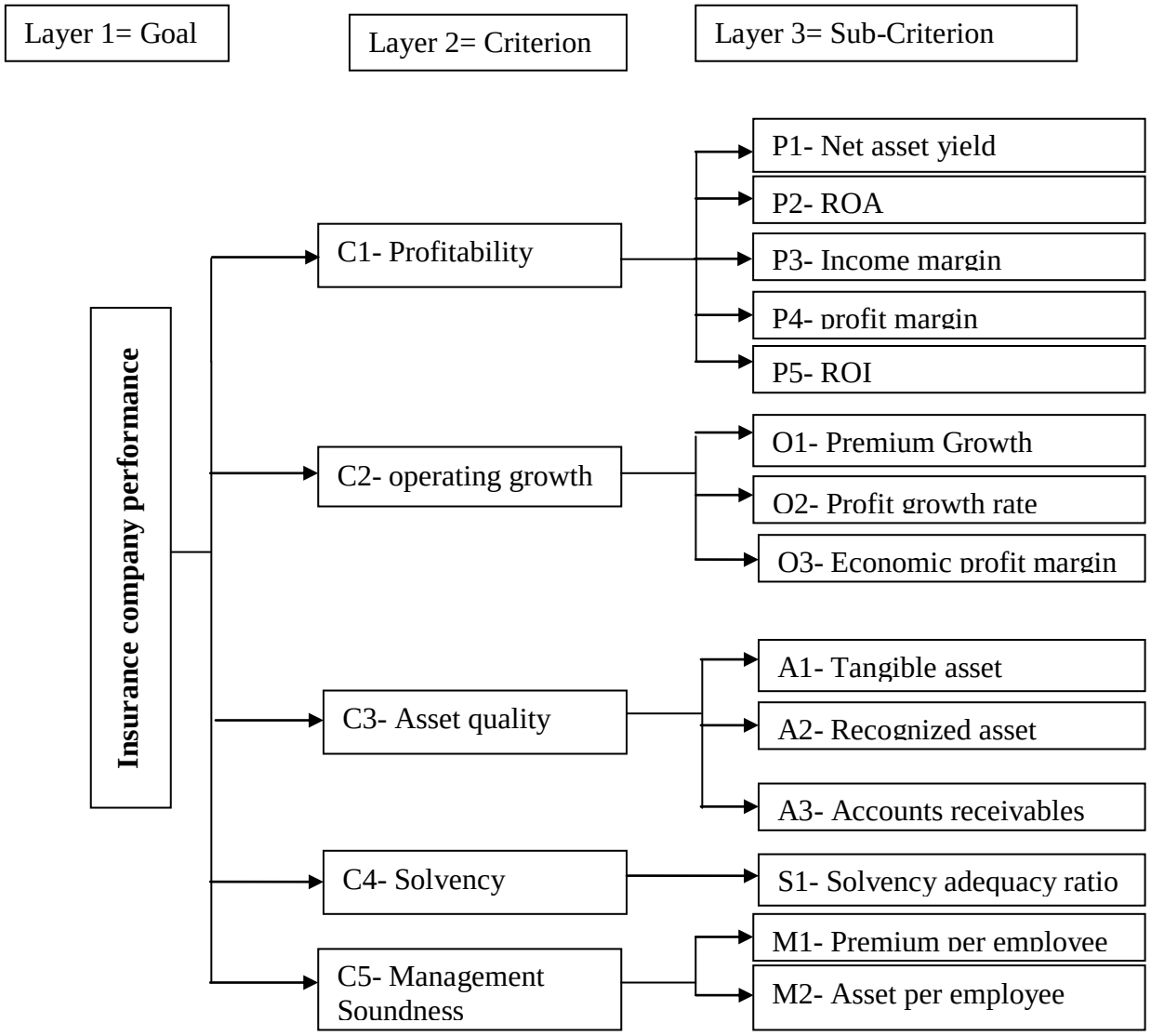


Fig 4.11: Insurance companies performance indicator hierarchy structure

4.3.2 Judgment Matrix for Pair-wise comparisons

After structuring the hierarchy, the step of collecting input data by pair-wise comparison comes for establishing judgment matrix. Saaty, (1980) recommended a scale of 1 to 9 when comparing two factors, with a score of 1 refers to there is no difference between two factors and 9 represents one factor is extremely important than the other one. On the other hand, if a factor has weaker impact, the range of scores will be from 1 to 1/9, where 1 represents indifference and 1/9 represents the factor is extremely unimportant than the other one.

It is very important to fill the judgment matrix. Twenty judgment matrix tables were filled by experts. Twelve of the matrixes were for bank performance criteria ranking and eight were for insurance companies performance indicators ranking. The pair wise comparison matrixes were filled by experts in the banking and insurance industry with at least more than 15 years of experience and in a position of top level management.

From the hierarchy, 6 pair-wise data was collected for each performance indicators of the financial institutions, that is 1 pair-wise comparison for criteria in layer 2 and 5 pair-wise comparison layer 3 of sub criteria. For instance the filled pair-wise comparison for criteria in layer 2 for bank and insurance respectively are as follows:

Table 4.1: Pairwise Comparison matrix of bank performance indicators

	Comparison of bank performance criteria				
	C1	**C2**	**C3**	**C4**	**C5**
C1	1	9	5	2	3
C2	1/9	1	½	1/5	1/3
C3	1/5	2	1	1/5	1/2
C4	½	5	5	1	2
C5	1/3	3	2	½	1

Table 4.2: Pairwise Comparison matrix of insurance performance indicators

	Comparison of insurance performance criteria				
	C1	**C2**	**C3**	**C4**	**C5**
C1	1	7	9	6	8
C2	1/7	1	5	4	7
C3	1/9	1/5	1	1/3	6
C4	1/6	1/4	3	1	4
C5	1/8	1/7	1/6	1/4	1

Filled judgment matrix has the following properties:

1) aij>0

2) aij= 1/aji

3) aii=1, (i, j = 1, 2 ,3, 4….n)

According to the characteristics above, judgment matrix has symmetrical and transitive.

4.3.3 Eigenvector and Eigen value

According to the filled out judgment matrix above, a certain mathematic methods were used to calculate its Eigenvector and Eigen value.

Eigenvector Ei First of all, to multiply all values in the row:

$Mi = ai1 + \ldots aij = aij$ n i (i,j=1...n),

W= $M1\ n$ +... $Mi\ n = Mi\ n\ n\ i$ (i,j =1....n),

$Ei = Mi\ n$ / W (i, j=1...n)

After normalized by each column, the priority vector for criteria was achieved as indicated below for banks and insurance companies respectively.

Table 4.3: Respective Eigenvector value of bank performance indicators

	C1	C2	C3	C4	C5	Eigenvector
C1	0.466	0.450	0.370	0.513	0.439	0.448
C2	0.052	0.050	0.037	0.051	0.049	0.048
C3	0.093	0.100	0.074	0.051	0.073	0.078
C4	0.233	0.250	0.370	0.256	0.293	0.281
C5	0.155	0.150	0.148	0.128	0.146	0.146

Table 4.4: Respective Eigenvector value of insurance performance indicators

	C1	C2	C3	C4	C5	Eigenvector
C1	0.647	0.815	0.495	0.518	0.308	0.557
C2	0.092	0.116	0.275	0.345	0.269	0.220
C3	0.072	0.023	0.055	0.029	0.231	0.082
C4	0.108	0.029	0.165	0.086	0.154	0.108
C5	0.081	0.017	0.009	0.022	0.038	0.033

Eigenvector Ei = (0.448, 0.048, 0.078, 0.281, 0.146) for bank and Ei = (0.557, 0.220, 0.082, 0.108, 0.033) for insurance companies respectively. The sum of five values for banks and insurance companies separately equal to 1, and these specific values refers to the proportions of each criterion to the target factors respectively.

4.3.4 Calculating consistency

Table 4.5: consistency matrix for bank performance indicators

Eigenvector	0.448	0.048	0.078	0.281	0.146			
	C1	**C2**	**C3**	**C4**	**C5**	**weighted sum value**	**Eigenvector**	
C1	0.448	0.430	0.392	0.561	0.437	2.267	0.448	5.065
C2	0.050	0.048	0.039	0.056	0.049	0.241	0.048	5.051
C3	0.090	0.096	0.078	0.056	0.073	0.392	0.078	5.008
C4	0.224	0.239	0.392	0.281	0.291	1.426	0.281	5.085
C5	0.052	0.450	0.296	0.064	0.146	1.008	0.146	6.921

Eigenvalue λmax= $\frac{\sum_i^n \text{AEi/Ei}}{\text{N}}$ = 5.4257

Table 4.6: consistency matrix for insurance performance indicators

Eigenvector	0.434	0.052	0.080	0.285	0.149			
	C1	**C2**	**C3**	**C4**	**C5**	**weighted sum value**	**Eigenvector**	λ_{max}
C1	0.557	1.538	0.738	0.651	0.267	3.750	0.557	6.737
C2	0.080	0.220	0.410	0.434	0.233	1.376	0.220	6.263
C3	0.062	0.044	0.082	0.036	0.200	0.424	0.082	5.173
C4	0.093	0.055	0.246	0.108	0.133	0.635	0.108	5.859
C5	0.010	0.002	0.002	0.005	0.033	0.053	0.033	1.582

Eigenvalue λmax= $\frac{\sum_i^n \text{AEi/Ei}}{\text{N}}$ = 5.1229

4.3.5 Consistency Verification

After calculating Eigenvector and Eigenvalue, the next step is judgment matrix consistency verification, for the purpose of explaining the judgment matrix is reasonable in logic. Only if judgment matrix has passed the consistency verification, eigenvector and eigenvalue can estimate the weight of indicators. And it is meaningful to continue analysis and to obtain the final result based on the previous data. The steps for consistency test will take place as follows:

First, to calculate Consistency index C.I for bank and insurance performance indicators respectively:

C.I. = λmax –n/n n−1

C.I. = 5.4257−5/ 5−1 = 0.1064 (for bank performance indicators)

C.I. = λmax –n/n n−1

C.I. = 5.1229−5/ 5−1 = 0.03 (for bank performance indicators)

Second, determine corresponding average random consistency index R.I. by checking the table below:

Table 4.7: Corresponding average random consistency index R.I. (Saaty 1982)

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
0	**0**	**0.58**	**0.9**	**1.12**	**1.24**	**1.32**	**1.41**	**1.45**	**1.49**

From the table we can see that different matrices have different values, for instance, for 5 matrices, R.I. =1.12.

Third, calculate consistency ratio C.R. And verify if the judgment matrix satisfy the requirement of consistency.

C.R. = $C.I/R.I.$

The judgment matrix consistency is acceptable if C.R. < 0.1, otherwise, the judgment matrix does not meet the requirement of consistency, the judgment matrix should be modified.

For bank performance criteria matrix,

C.I. = 0.1064 and C.R. = 0.09 < 0.1,

For insurance performance criteria matrix,

C.I. = 0.03 and C.R. = 0.027 < 0.1,

Therefore judgment matrix is acceptable.

The importance of five performance criterion for banks is:

Liquidity>Capital adequacy >Asset quality >Profitability > Efficiency

The importance of five performance criteria for insurance companies is:

Profitability>Operating growth >Solvency >Asset quality>Management soundness

4.3.6 Calculating the relative importance of elements in single criterion

The relative importance of criteria for performance indicator ranking was done based on the AHP calculation method above, for the solution factors to Layer 2. There are still five judgment matrixes for banks sub criterion and three judgment matrixes for insurance companies sub criterion need to be calculated and consistency tested by following the above calculation process.

Sub criteria filled out judgment matrixes, their eigenvalues, consistency indexes and consistency ratios are:

Bank performance indicators sub criteria evaluation

Table 4.8: Three alternatives judgment matrix based on liquidity

	C1	C2	C3
C1	1	1/7	¼
C2	7	1	3
C3	4	1/3	1

λmax = 3.033

C.I. = 0.16

C.R. = 0.028

Table 4.9: Three alternatives judgment matrix based on efficiency.

	C1	C2	C3
C1	1	5	7
C2	1/5	1	3
C3	1/7	1/3	1

λmax = 3.066

C.I. = 0.033

C.R. = 0.057

Table 4.10: Three alternatives judgment matrix based on profitability.

	C1	C2	C3
C1	1	5	7
C2	1/5	1	3
C3	1/7	1/3	1

λmax = 3.066

C.I. = 0.033

C.R. = 0.057

Table 4.11: Three alternatives judgment matrix based on capital adequacy.

	C1	C2	C3
C1	1	1/3	1/7
C2	3	1	¼
C3	7	4	1

λmax = 3.033

C.I. = 0.016

C.R. = 0.028

Table 4.12: Three alternatives judgment matrix based on asset quality.

	C1	C2	C3
C1	1	1/3	1/7
C2	3	1	¼
C3	7	4	1

λmax = 3.033

C.I. = 0.016

C.R. = 0.028

Insurance company performance indicators sub-criteria evaluation

Table 4.13: Five alternatives judgment matrix based on profitability.

	C1	C2	C3	C4	C5
C1	1	7	9	6	8
C2	1/7	1	5	4	7
C3	1/9	1/5	1	1/3	6
C4	1/6	¼	3	1	4
C5	1/8	1/7	1/6	1/4	1

λmax = 5.1229

C.I. = 0.0307

C.R. = 0.027

Table 4.14: Three alternatives judgment matrix based on operating growth.

	C1	C2	C3
C1	1	7	5
C2	1/7	1	1/3
C3	1/5	3	1

λmax = 3.066

C.I. = 0.033

C.R. = 0.057

Table 4.15: Three alternatives judgment matrix based on asset quality

	C1	C2	C3
C1	1	5	7
C2	1/5	1	3
C3	1/7	1/3	1

λmax = 3.066

C.I. = 0.033

C.R. = 0.057

4.3.7 Vectors integrated for priority ranking

Consistency ratios for eight matrixes were tested acceptable. So eigenvectors and eigenvalues which were calculated in criteria layer and sub criteria layer are reasonable in logic.

4.4 Establishing interdependency matrix using DEMATEL

4.4.1 Creating direct relation matrix

After ranking the performance indicators of financial institutions in the previous section, another direct relation matrix was developed to investigate interdependency between each performance indicator and performance indicators of capital market.

A combination of interview and scoring sheet is used to determine the influence relationship among each performance indicators. The interview was conducted on experts from the banking industry, insurance industry and researchers with capital market knowledge.

Table 4.16: Listed labels of bank and capital market performance indicators.

Label	**Description**
F1	Market capitalization
F2	Trade volume (annual average)
F3	Liquidity of banks
F4	Efficiency of banks
F5	Profitability of banks
F6	Capital adequacy of banks
F7	Asset quality of banks

Table 4.17: Direct relation matrix for capital market and bank performance indicators.

	F1	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**	$\sum^{n}_{j=1} a_{ij}$
F1	0	4	4	4	3	3	1	19
F2	4	0	3	1	2	3	1	14
F3	2	4	0	1	4	2	1	14
F4	3	3	3	0	4	2	3	18
F5	4	4	3	3	0	3	1	18
F6	2	2	3	1	3	0	2	13
F7	4	4	1	1	3	2	0	15

Table 4.18: Listed labels of insurance company and capital market performance indicators.

Label	**Description**
F1	Market capitalization
F2	Trade volume (annual average).
F3	Profitability of insurance companies.
F4	Operating growth of insurance companies.
F5	Asset quality of insurance companies.
F6	Solvency of insurance companies.
F7	Management soundness

Table 4.19: Direct relation matrix for capital market and insurance performance indicators.

,	**F1**	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**	$\sum^{n}_{j=1} a_{ij}$
F1	0	4	3	2	2	3	2	16
F2	4	0	4	3	1	3	1	16
F3	4	4	0	3	2	3	3	19
F4	4	4	4	0	3	3	2	20
F5	4	4	4	2	0	2	2	18
F6	4	4	3	1	1	0	1	14
F7	3	3	3	3	3	2	0	17

4.4.2 Normalizing the direct relation matrix

Normalizing the direct relation matrix M according to equation (2) by using excel, the normalized direct relation matrix N for bank and insurance companies respectively is as follows:

Table 4.20. Normalizing direct relation matrix N of capital market and bank.

	F1	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**
F1	0	0.210526	0.210526	0.210526	0.157895	0.157895	0.052632
F2	0.210526	0	0.157895	0.052632	0.105263	0.157895	0.052632
F3	0.105263	0.210526	0	0.052632	0.210526	0.105263	0.052632
F4	0.157895	0.157895	0.157895	0	0.210526	0.105263	0.157895
F5	0.210526	0.210526	0.157895	0.157895	0	0.157895	0.052632
F6	0.105263	0.105263	0.157895	0.052632	0.157895	0	0.105263

F7	0.210526	0.210526	0.052632	0.052632	0.157895	0.105263	0

Table 4.21. Normalizing direct relation matrix N of capital market and insurance companies.

	F1	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**
F1	0	0.2	0.15	0.1	0.1	0.15	0.1
F2	0.2	0	0.2	0.15	0.05	0.15	0.05
F3	0.2	0.2	0	0.15	0.1	0.15	0.15
F4	0.2	0.2	0.2	0	0.15	0.15	0.1
F5	0.2	0.2	0.2	0.1	0	0.1	0.1
F6	0.2	0.2	0.15	0.05	0.05	0	0.05
F7	0.15	0.15	0.15	0.15	0.15	0.1	0

4.4.3 Creating total relation matrix

After normalized the direct relation matrix, we can create total relation matrix T based on Table 3 and equation (3) by using MATLAB.

Table 4.22: Total relation matrix t for capital market and banks.

	F1	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**	**D**
F1	0.8379	1.0974	0.9842	0.7183	0.97	0.8442	0.4596	5.9116
F2	0.8127	0.7045	0.7556	0.4702	0.7293	0.6791	0.3564	4.5078
F3	0.7402	0.8806	0.6151	0.4665	0.8046	0.6393	0.3536	4.4999
F4	0.953	1.0321	0.9098	0.5261	0.9782	0.7798	0.5269	5.7059
F5	0.9808	1.0603	0.9142	0.6603	0.7967	0.8181	0.4405	5.6709
F6	0.693	0.7544	0.706	0.4365	0.7265	0.5034	0.3787	4.1985
F7	0.8749	0.9374	0.7178	0.5053	0.8117	0.6828	0.3275	4.8574
R	5.8925	6.4667	5.6027	3.7832	5.817	4.9467	2.8432	

Table 4.23: Total relation matrix t for capital market and insurance companies.

	F1	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**	**D**
F1	0.873	1.0396	0.9289	0.6577	0.5508	0.7838	0.5387	5.3725
F2	1.0485	0.8818	0.9718	0.7001	0.5167	0.7926	0.506	5.4175
F3	1.1852	1.1852	0.9319	0.7922	0.6326	0.8929	0.6547	6.2747
F4	1.2401	1.2401	1.1495	0.6957	0.6987	0.9331	0.6445	6.6017

F5	1.1455	1.1455	1.0635	0.7285	0.5182	0.824	0.5972	6.0224
F6	0.9347	0.9347	0.8301	0.5486	0.4509	0.5767	0.4435	4.7192
F7	1.0673	1.0673	0.9899	0.741	0.6326	0.7916	0.4855	5.7752
R	7.4943	7.4942	6.8656	4.8638	4.0005	5.5947	3.8701	

4.4.4 Calculating the influence degree, the affected degree, the centre degree and the cause degree

After creating total relation matrix T, Then we calculate prominence (D+R) and cause-effect (D-R) values based on equation (4) and (5). D is the influence degree of each indicator and R is the affected degree of each indicator.

Table 4.24: Influence degree, affected degree, centre degree and cause degree of bank and market performance indicators.

	D	**R**	**D-R**	**D+R**
F1	5.9116	5.8925	0.0191	11.8041
F2	4.5078	6.4667	-1.9589	10.9745
F3	4.4999	5.6027	-1.1028	10.1026
F4	5.7059	3.7832	1.9227	9.4891
F5	5.6709	5.817	-0.1461	11.4879
F6	4.1985	4.9467	-0.7482	9.1452
F7	4.8574	2.8432	2.0142	7.7006

Table 4.25 Influence degree, affected degree, centre degree and cause degree of insurance and market performance indicators.

	D	**R**	**D-R**	**D+R**
F1	5.3725	7.4943	-2.1218	12.8668
F2	5.4175	7.4942	-2.0767	12.9117
F3	6.2747	6.8656	-0.5909	13.1403
F4	6.6017	4.8638	1.7379	11.4655
F5	6.0224	4.0005	2.0219	10.0229
F6	4.7192	5.5947	-0.8755	10.3139
F7	5.7752	3.8701	1.9051	9.6453

D is the influence degree of each performance indicator, R is the affected degree of each performance indicator, D+R is the centre degree of each performance indicator and D-R is the cause degree of each performance indicator.

The centre degree represents factor's position and importance in the system, the bigger the number of centre degree; the more important it is in the system. If cause degree D-R > 0, that means influence degree is bigger than affected degree, the factor influences other factors. If D-R < 0 that means influence degree is smaller than affected degree the factor affected by other factors.

4.4.5 Creating visual diagram

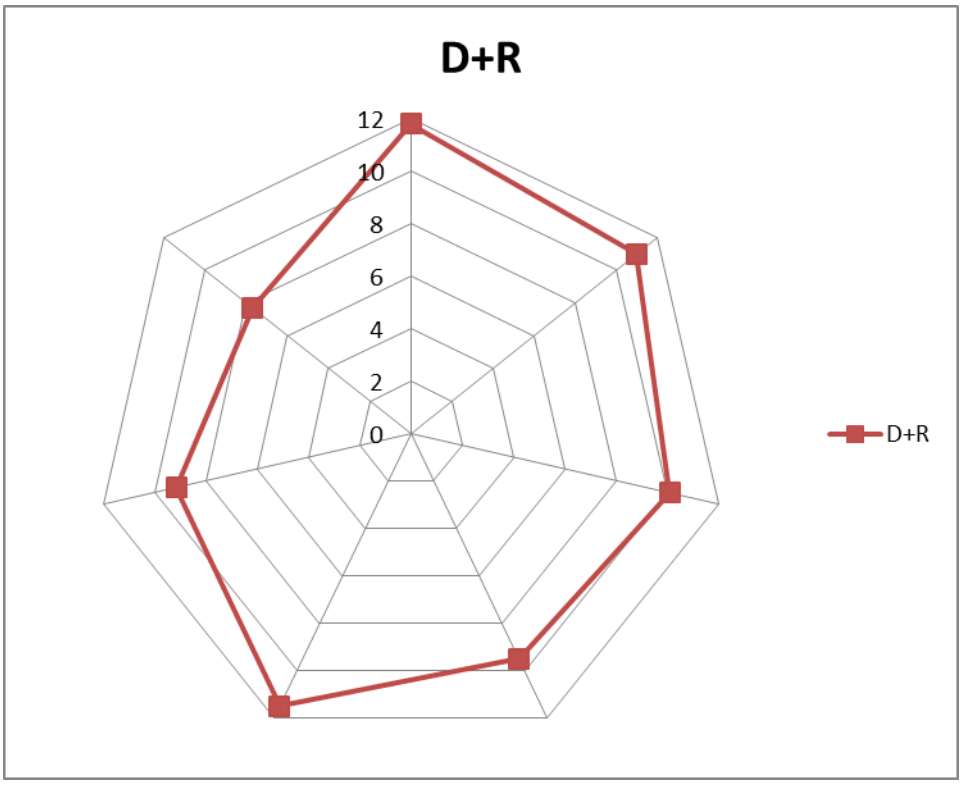


Fig 4.12. Centre degree of bank performance indicators

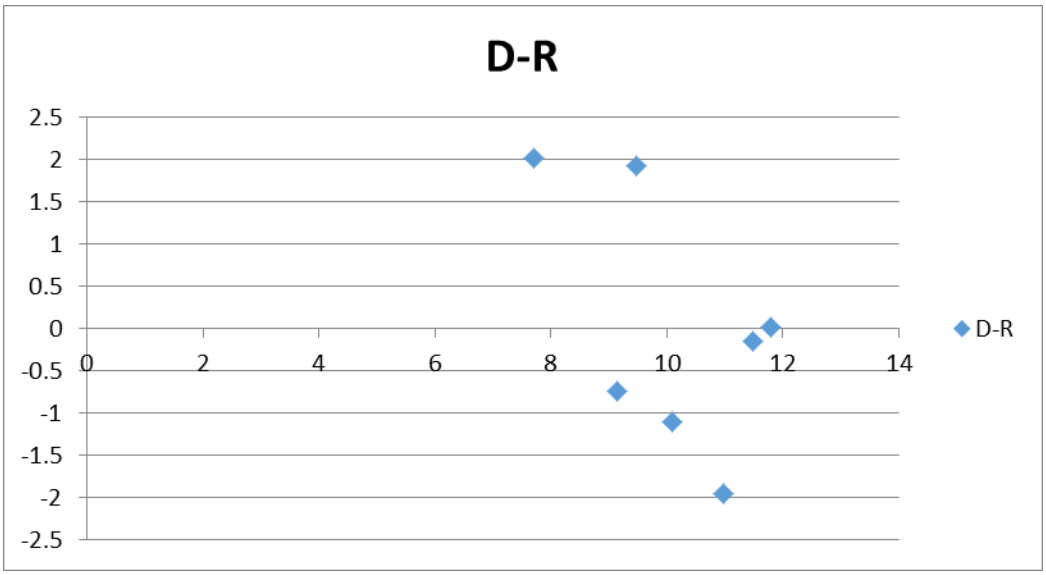


Fig. 4.13: casual diagram of bank and market performance indicators

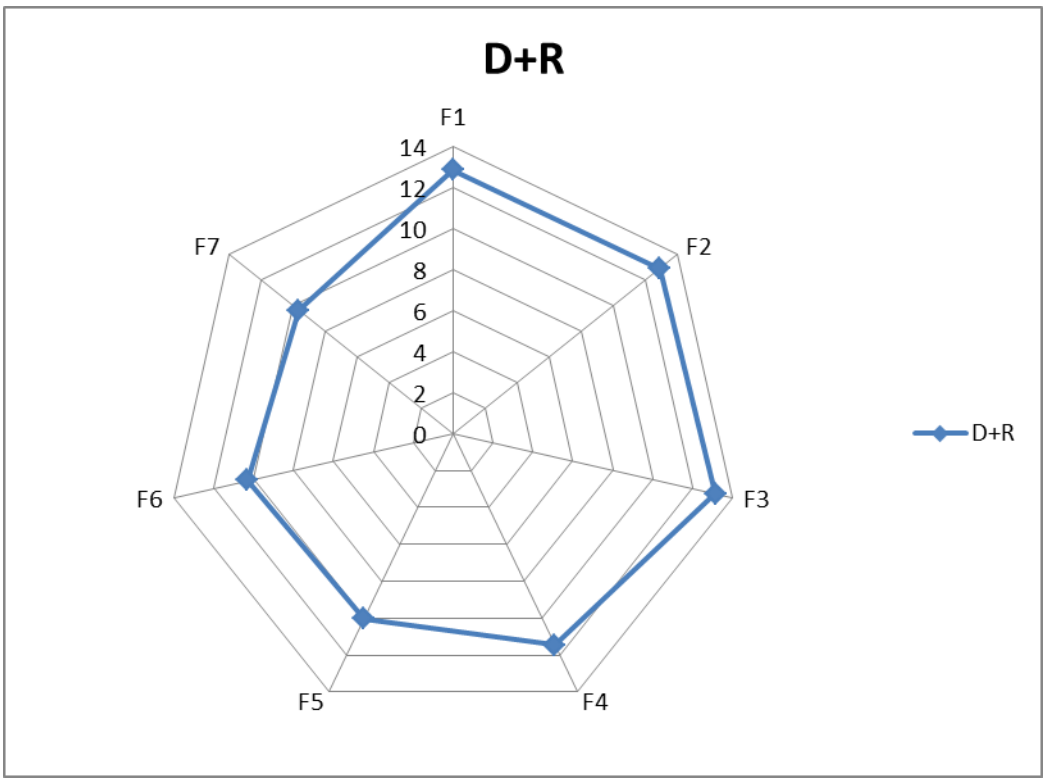


Fig. 4.14: Centre degree of insurance performance indicators

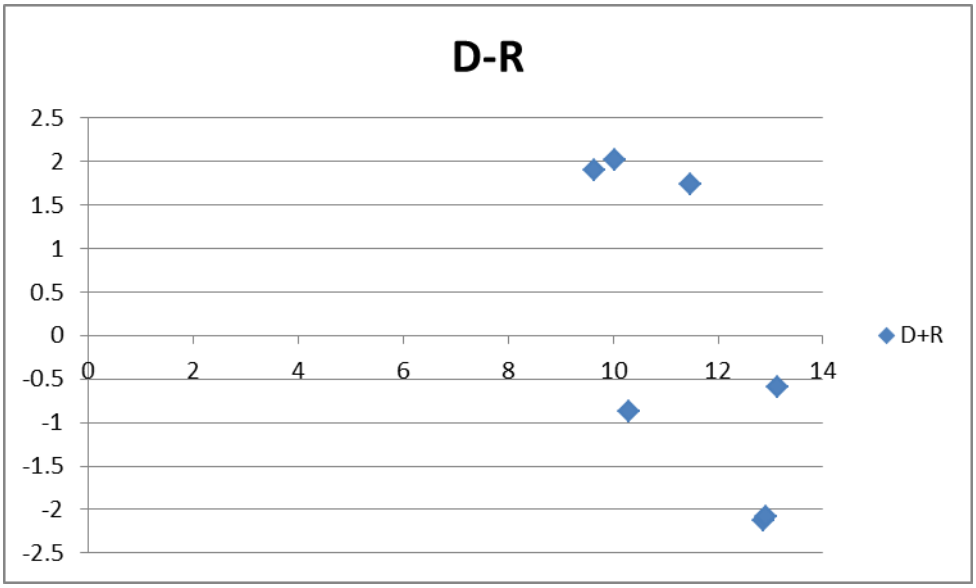


Fig. 4.15: casual diagram of insurance and market performance indicators

Bank and capital market interdependency interpretation

After created visual diagram, we can see that order of the centre degree follow the order as F1, F5, F2, F3, F4, F6, and F7. The centre degree indicates that the importance of performance indicators in the influence system. Therefore, based on the result, market capitalization, profitability, trade volume, liquidity, efficiency and capital adequacy have bigger centre degree that means have higher influence in the interaction to determine performance of banks and capital market. But asset quality relatively shows lower centre degree meaning low influence in the interaction to determine performance of bank and capital market.

We can see from the values of D-R that F1, F4 and F7 are bigger than zero, and F2, F3, F5 and F6 are smaller than zero. As mentioned before, when cause degree is bigger than zero, the factor influences other factors thus F1, F4 and F7 (market capitalization, efficiency and asset quality) are the factors of influence also known as the cause group.

In figure 4.3 F1 – market capitalization has the highest D+R position indicator value which means, that it is related in the strongest way with other perspectives, taking a central place in the web of mutual relations. The lowest value of this indicator is attained by the F7 – asset quality. In turn, D-R relation indicator allows to set a level of influence of analysed parameter on other parameters. In fig. 4.4, F7 – asset quality has the highest, positive value of D-R relation indicator which means, that this perspective has a dominating, casual influence on other perspectives but it has a relatively lower D+R the implies its weak interdependence with all the criterion revealing it

only influences mainly few of the performance indicators. In turn F2 and F3 – trade volume and liquidity, having the highest negative value of the relation indicator implies highest degree recipient of the influence extended by other perspectives. In figure 4.5, the F5 and F6 – profitability and capital adequacy, also with a negative value of relation indicator, recipient of influence extended from other criteria and are the most important criteria for bank performance.

Insurance and capital market interdependency interpretation

After created visual diagram, we can see that order of the centre degree follow the order as F3, F2, F1, F4, F6, F5, and F7. The centre degree indicates that the importance of performance indicators in the influence system. Therefore, based on the result, Profitability, trade volume, market capitalization, operating growth, solvency, asset quality and management soundness have bigger centre degree that means have higher influence in the interaction to determine performance of insurance companies and capital market.

We can see from the values of D-R that F4, F5 and F7 are bigger than zero, and F1, F2, F3 and F6 are smaller than zero. As mentioned before, when cause degree is bigger than zero, the factor influences other factors thus F4, F5 and F7 (operating growth, asset quality and management soundness) are the factors of influence on other factors or the cause group.

In figure 4.5 the F1 – market capitalization has the highest D+R position indicator value which means, that it is related in the strongest way with other perspectives, taking a central place in the web of mutual relations. The lowest value of this indicator is attained by the F7 – asset quality. In turn, D-R relation indicator allows to get a level of influence of analysed parameter on other parameters. Is simultaneously assumed, allowing to reflect the parameter's priority among other analysed relations.

In fig. 4.4, the F5 – asset quality has the highest, positive value of D-R relation indicator which means, that this perspective has a dominating, casual influence on other perspectives.

In turn F1 and F2 – market capitalization and trade volume, having the highest negative value of the relation indicator, is in to the highest degree recipient of the influence extended by other perspectives. In figure 4.4, the F3 and F6 – profitability and solvency, also with a negative value of relation indicator, recipient of influence extended from other criteria and are the most important criteria for insurance performance.

4.5 Discussions

4.5.1 Introduction

Several steps were taken to rank performance criteria of banks and insurance companies by using AHP. Then, DEMATEL is used to project influence relationship between capital market indicators versus bank and insurance companies in Ethiopia. All achieved vectors and values were tabulated to illustrate each weight. The table below summarizes the results of the assigned criteria weight as well as degree of influence for bank and insurance companies respectively. Interpreted findings are synthesised below.

4.5.2 Capital market and bank performance indicators

Table 4.26: Ranked performance indicators of bank

Criteria Label	Criteria name	Criteria weight	Sub criteria label	Sub Criteria weight
C1	Liquidity	0.448	L1	0.6687
			L3	0.2431
			L2	0.0882
C4	Capital adequacy	0.281	Ca3	0.7014
			Ca2	0.2132
			Ca1	0.0853
C5	Asset quality	0.146	A3	0.7014
			A2	0.2132
			A1	0.0853
C3	Profitability	0.078	P1	0.7235
			P2	0.1932
			P3	0.0833
C2	Efficiency	0.048	E1	0.7235
			E2	0.1932
			E3	0.0833

Table 4.27:Influence, affected, centre and cause degree of market and bank performance indicators.

	D	R	D+R	D-R
Market capitalization	5.9116	5.8925	11.8041	0.0191
Trade volume	4.5078	6.4667	10.9745	-1.9589
Liquidity	4.4999	5.6027	10.1026	-1.1028
Efficiency	5.7059	3.7832	9.4891	1.9227
Profitability	5.6709	5.817	11.4879	-0.1461
Capital adequacy	4.1985	4.9467	9.1452	-0.7482
Asset quality	4.8574	2.8432	7.7006	2.0142

According to experts in the banking industry in Ethiopia performance indicators are ranked as seen on table 4.26.

4.5.3 Bank performance indicators result interpretation

Liquidity

Liquidity is considered to be the first most important financial performance indicator among all criteria in the banking industry. Liquidity is identified as critical indicator in the body of knowledge by many researchers such as (Rachdi, 2013; Lipunga, 2014; Kumbirai and Web, 2010) but in contrary Lelissa, (2014) argued that liquidity is not the answer to performance rather the ability of banks to control their credit risk. And banks need to diversify their income sources by incorporating non-traditional banking services and control their overhead expenses which could actually affect bank performance. However, researches such as Samad, (2004) describe liquidity as ‘‘the life and blood of a bank’’. This statement is supported by many researchers implying liquidity not only serves as a critical performance indicator but also miss management could lead to bankruptcy.

This research identified liquidity in Ethiopian banking industry to be measured by liquid asset to total asset ratio. As much as this measurement is acceptable by researchers such as Mattana and Panetti, (2012) others argue that bank can be solvent, holding assets exceeding its liabilities on an economic and accounting basis, and still die a sudden death if its depositors and other funders lose confidence in the institution (Elliott, 2015).

Although, liquidity is the most critical performance indicator in Ethiopian banking industry when interdependencies were projected by introducing capital market indicators, it is highly influenced

by others in the system such as market capitalization, efficiency and asset quality. This research reports evidence that bank liquidity ratios (liquid assets to total assets) is going to be influenced by market capitalization especially in early stages of development. As the findings indicate when capital market is introduced depositors will have alternative investment opportunities in the market which will become a competition for bank savings affecting liquidity directly. Therefore, banks will have to provide better interest rate to saving and engage in profitable lending activities to absorb high saving interest rate and still maintain their profit margin. Therefore banks in turn will be forced to decrease their liquidity ratio to guarantee existence. This finding is similar with Mattana and Panetti, (2012) that suggests liquid asset to total asset ratio of banks decrease during the process of economic development. They stated in a new introduction of financial markets banks engage in cross-subsidization of the impatient depositors to keep up with the competitive pressure from the markets. Moreover, as the economy grows, it becomes easier for the individuals to access the market, and the banks react to this by lowering their liquidity ratios. In a panel investigation of 45 countries, they found evidence that such a mechanism is into place. Concluding in a one-unit increase in an index of securities market liberalization leads to a drop in the bank liquidity ratio between 15 and 22 per cent. This is also seen on the banking industry liquidity trend analysis done based on NBE's data. The liquidity of the banking industry is taking a descending trend every year and it only seems to get worse. Currently the NBE is extending credit for the banks because of constrains they are facing to pay their demand deposits. This liquidity problem is being addressed by the NBE. The NBE offered 5.5 billion birr for credit which can only be used to pay demand deposit for banks. All of the 17 banks applied for a total of 8.7 billion birr for loan, exceeding the initial 5.5 billion offers by 3.2 billion birr. And the liquidity position of banks got worse forcing the NBE to extend another 9billion in a month time (Tadesse, 2019). This is a critical sign how tight liquidity position could potentially lead the banking industry to collapse. Moreover, without any sustainable improvement on its liquidity position, the banking industry is going to face another competition from capital market in two month time.

Capital adequacy

Capital adequacy measured by total capital to risk weighted asset in this study is the second runner up of financial performance indicator among all criteria in the banking industry. Capital adequacy is identified as critical indicator in the body of knowledge by researchers such as

(Staikouras and Wood, 2004 and Bhandari and Nakarmi, 2014). They all claim the banks with higher capital perform better than their undercapitalized peers. In contrary Goddard et al., (2004) and Abdul, (2017) argue that the banks' regulators should not only focus on capital adequacy but also on supervisory review and market discipline to maintain banks' financial strength and stability because if bank capital adequacy ratio is high it might mean the bank is operating cautiously skipping investment opportunities to avoid risk which ultimately impact performance. But researches such as Kombo and Njuguna (2017) in a more recent study in Kenya concluded that capital adequacy requirement is an important performance indicator in banks. There should be a need to increases capital requirements for counterparty credit risk arising from derivatives, repurchase agreements and securities financing activities to guarantee financial stability especially in developing countries like Kenya.

Being the second most critical indicator in the banking industry capital adequacy is highly influenced by market capitalization, efficiency and asset quality when checked for interdependency. This indicates that policy makers should put capital adequacy in to perspective by leaning towards strengthening capital regulations with the goal of promoting a more resilient banking sector; and improving the banking sector's ability to take up shocks resulting from financial and economic stress.

Asset quality

The third indicator on the hierarchy is asset quality. Asset quality in this study is measured by non-performing loan to outstanding loan. Asset quality is also identified as the cause group in this thesis when checked for interdependency with other performance indicators of bank and capital market. This finding is also in conformity with Rawlin et.al, (2015) that suggested bank share price appreciation could come at the expense of asset quality. Although asset quality stood third in the level of importance for bank specific factors it has the lowest D+R in DEMATEL model which reveals weak interdependency in the model limiting its relationship to bank specific factors more than market specific factors especially profitability. This is justified in the body of literature especially regarding profitability by many researchers. Non-performing loans to outstanding loan were identified as factors that affect profitability of banks specially ROE and ROA by many researchers (Abata, 2014; Pasiouras and Kosmidou, 2007; Adebisi and Matthew, 2015; Bace, 2016; Bhattarai, 2016; Kiran and Jones, 2016; Etale, Ayunku, and Etale, 2016; Güneş and Yilmaz, 2016; Ongore and Kusa, 2013; Ozgur and Gorus, 2016; Ozurumba, 2016 and

Sarıtaş, et.al., 2016). On the other hand, Afiriyie and Akotey, (2013) and Bhattarai, (2016) found positive correlation between ROE and NPL and Buchory, (2015) found positive correlation between Return on Assets (ROA) and NPL.

In Ethiopian bank context the national bank has a series of policies regarding NPL and closely follows bank asset quality to avoid any credit crunch which ultimately influences economic growth.

Profitability

The fourth indicator on the hierarchy is profitability. Profitability in this study is measured by return on equity. Profitability is identified as the affected group in this thesis when checked for interdependency with other performance indicators of bank and capital market. In this study, although profitability is in the affected group having one of the highest D+R in the system which identifies strong interdependency relationship with in the system. This reveals profitability is affected by bank specific as well as market specific factors. Gul et.al., (2011) in agreement confirmed profitability is affected by both internal and external factors such as assets, loans, equity, deposits, economic growth, inflation and market capitalization. In contrary Aburime, (2008) argue there is insignificant relationship between stock market development and profitability in evidence from Nigeria. But researchers such as Sayari and Shamki, (2016) in a more recent and detailed study suggested ROE is a more superior measure of profitability and market capitalization has a significant positive relationship with ROE.

Efficiency

The fifth indicator on the hierarchy is efficiency measured by total advance to total deposit. Although efficiency stood last in the ranking of performance measure of bank specific indicators when market specific factors are introduced it has one of the highest D+R conforming high relationship in the system and having a positive D-R appearing in the cause group. This implies that this performance indicator has low relative importance where bank specific factors are concerned. But with the introduction of market specific factors in the system it could actually become important influence factor in the system. This finding is in conformity with researches such as Rawlin et.al, (2015), Vardar, (2013), Ioannidis et.al, (2008) and Sharma, (2018) that suggested profit efficiency measures were key determinants of the share price in both developed and developing economies. But other researcher such as Song and Thakor, 2010; Bossone and Lee, 2004, Al Shubiri and Jamil, 2017 and Ahokpossi, 2013) in contrary identified reverse

relationship stating capital market development has efficiency effects on banks. Similarly, Mogbolu and Tizhe, (2017) on a more recent study conducted in Sub-Saharan African economies inferred, low banking efficiency exists alongside rapidly developing but illiquid capital markets elaborating trade volume of capital market affect bank efficiency.

4.5.4 Capital market and insurance companies' performance indicators

Table 4.28: Ranked performance indicators of insurance companies

Criteria Label	Criteria name	Criteria weight	Sub criteria label	Sub Criteria weight
C1	Profitability	0.557	P5	0.489
			P2	0.254
			P1	0.146
			P3	0.068
			P4	0.043
C2	Operating growth	0.220	O1	0.7235
			O3	0.1932
			O2	0.0833
C4	Solvency	0.108	Solvency ratio	
C3	Asset quality	0.082	A1	0.7235
			A2	0.1932
			A3	0.0833
C5	Management soundness	0.033	M2	0.8333
			M1	0.1667

Table 4.29: Influence, affected, centre and cause degree of market and insurance performance indicators.

	D	R	D+R	D-R
Market capitalization	5.3725	7.4943	12.8668	-2.1218
Trade volume	5.4175	7.4942	12.9117	-2.0767
Profitability	6.2747	6.8656	13.1403	-0.5909
Operating growth	6.6017	4.8638	11.4655	1.7379
Solvency	6.0224	4.0005	10.0229	2.0219

Asset quality	4.7192	5.5947	10.3139	-0.8755
Management soundness	5.7752	3.8701	9.6453	1.9051

According to experts in the insurance industry in Ethiopia performance indicators are ranked as seen on table 4.28.

The interaction between capital market development and insurance company performance in Ethiopia was projected in having complementarity. This projection is in consistency with findings by (Catalan et al., 2000; Impavido et al., 2003; Skipper, 1997; Arena, 2008 and Turner, 2002).

4.5.5 Insurance performance indicators result interpretation

Profitability

Profitability is considered to be the first most important financial performance indicator among all criteria in the insurance company industry. This finding is consistent with researchers such as (Valahzaghard and Ferdousnejhad 2013 and Shahnawaz, 2018). According to the evaluations taken in this study profitability in the insurance industry is proxied by return on investment. As experts explain it the main reason behind this is that insurance companies do not make profits out from their core business of underwriting. And yet profit is generated majority of the times from cash flow and operations in liquidity management. This finding is supported by researchers such as (Gonga and Sasaka 2017; Al-Nimer and Alslihat, 2015 and Mamun, 2010).

Profitability being critical performance indicator in the insurance industry when interdependencies were projected introducing capital market indicators, it is influenced by others in the system such as operating growth, solvency and management soundness. According to the analysis based on expert opinion profitability in insurance companies are more influenced by internal factors than market specific factors. But experts also indicated since insurance profitability depends on return on investment the market could provide a platform for investment diversification and should make more use out of the capital market instead of limited interest profits. Accordingly, many studies conducted in order to examine the profitability ratios effect on many variables as it’s a critical indication for the firm's survival, growth, market capitalization and various other variables.

Operating growth

Operating growth mainly explained by premium growth in Ethiopian insurance industry is the second on the ranking list to evaluate performance. The importance of operating growth in determining insurance performance in the body of the literature is consistent with (Burca and Batrinca, 2014 and Shahnawaz 2018). And when checked for interdependency operating growth is categorised in the cause group influencing market capitalization, trade volume; profitability and asset quality of insurance companies. According to the investigation when the insurance premiums increase, mainly the stock transaction explained by trade volume also increases. This finding is also supported by researchers such as (Guerineau and Sawadogo, 2015).

Solvency

Solvency mainly explained by solvency ratio in Ethiopian insurance industry is the third on the ranking list to evaluate performance. And when checked for interdependency solvency is categorised in the cause group influencing market capitalization, trade volume, profitability and asset quality of insurance companies. According to Yildırım and Çakar, (2015) solvency capital requirement amounts may assist in the identification and prevention of possible liquidity and bankruptcy issues insurance companies may be faced with. The importance of solvency in measuring performance of insurance companies is consistent with (Burca and Batrinca, 2014).

Asset quality

Asset quality mainly explained by tangible asset in Ethiopian insurance industry is the fourth on the ranking list to evaluate performance. And when checked for interdependency asset quality is categorised in the affected group influenced by solvency, operating growth and management soundness of insurance companies. Tangible asset has been recognized as a performance indicator in the body of the literature by researcher such as (Mehari and Aemiro, 2013 and Fenn and Cole, 1994).

Management soundness

The fifth indicator on the hierarchy is Management soundness measured by asset per employee. When checked for interdependency management soundness is categorised in the cause group influencing market capitalization, trade volume, profitability and asset quality of insurance companies. Although management soundness stood last in the ranking of performance measure of insurance specific indicators when market specific factors are introduced it has one of the highest D+R conforming high relationship in the system and having a positive D-R appearing in

the cause group. This implies that this performance indicator has low relative importance where insurance specific factors are concerned. But with the introduction of market specific factors in the system it could actually become important influence factor in the system. This finding is in conformity with researches such as (Liargavas and Skandalis, 2008; Merikas and Merika, 2006 and Almajali et.al., 2012) that suggested management soundness significantly affect firm specific factors in influencing performance of insurance companies listed on a stock exchange.

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CHAPTER FIVE

SUMMARY, CONCLUSION and POLICY IMPLICATIONS

5.1 Summary

Findings on this study ranked performance indicators of financial institutions as follows.

Liquidity, capital adequacy, asset quality, profitability and efficiency for banks: profitability, operating growth, solvency, asset quality and management soundness for insurance companies according to their level of importance.

Banking industry performance indicators ranking showed liquidity to have more than 40 percent weight in determining performance of the banking industry efficiency to have the lowest effect.

But as for the insurance companies profitability takes the majority share in determining performance of the industry wile management soundness takes minor portion.

Interdependencies were also checked to verify the cause group and the affected group among performance indicators of financial institutions and capital market. Accordingly, findings revealed market capitalization, efficiency and asset quality are among the cause group influencing liquidity, trade volume, capital adequacy and profitability for banks. As for insurance companies operating growth, asset quality and management soundness are performance indicators that influence market capitalization, trade volume, profitability and solvency.

This finding therefore summarises, although liquidity is the principal performance indicator in the banking industry, it is highly affected by capital market and firm specific performance indicators such as market capitalization and efficiency. And as much as efficiency is the least recognized in contributing to performance in the banking industry, it could actually influence bank and market specific factors such as trade volume, profitability and capital adequacy during the introduction of capital market.

Moreover, profitability of insurance companies holds major share in determining performance and is significantly affected by firm specific factors such as operating growth, asset quality and management soundness. And as much as management soundness is the last on the list in contributing to insurance performance, it is categorized in the cause group influencing both market and firm specific performance indicators such as profitability, market capitalization, trade volume and solvency.

5.2 Conclusion

The finance-growth debate has evolved over the years, initiating a number of theories and hypothesis including financial liberalization, finance-led growth; growth-led finance; market feedback; bank-based and market-based. This study used market feedback or bi-directional hypothesis and Finance-led Growth Hypothesis as a theoretical lens. Extant literature indicates mixed interdependence between financial institution performance and capital market development in a developing country context. This research aimed to examine the relative importance of financial institution performance indicators and their potential interdependence with capital market development using AHP and DEMATEL multi-criteria decision making models.

The study revealed while liability portfolio management is a top priority for banks it is profitability for insurance companies, implicating the difference in priority and possible interaction with the forthcoming capital market in Ethiopia.

Accordingly, the study concludes competitive and complementary relationship between banks and insurance companies with capital market development, respectively.

Therefore, this paper urges stakeholders that can be affected by performance of Ethiopian banking industry in particular to be aware of the potential challenges that might arise during the launch of capital market to craft strategies ahead. And stakeholders of insurance companies need to see the upcoming opportunities and cease to the best outcomes.

5.3 Policy implications

This research directs to a number of opportunities and challenges that policy makers will have to wrestle over in order to support the development of capital markets and existing financial institutions. This can be achieved through promoting the participation of long-term institutional investors in capital markets to take advantage of new investment trends and craft strategies for the challenges this financial system integration brings. This awareness is believed to help establish a more stable and resilient financial system that can absorb shocks.

While the benefit of launching capital market is well understood, it must also be recognized that enormous interdependencies will occur with existing financial institution associated to performance.

The most important bank performance indicator according to findings in this study is liquidity and as much as it is important to assure performance in the banking industry it has a great

potential of being affected by market. This study therefor recommends for banks to promote financial inclusion through technology, increase liquidity by using shortened asset maturity and issue more equity.

Financial inclusion through technology could help banks to decrease their cost of mobilizing deposit by using technology rather than the old fashioned and expensive branch expansion. The shorted asset maturity can also help reduce cash crunch. This implies for banks to monitor more liquid asset to demanded deposit ratio instead of liquid asset to total asset.

Issuing more equity is also a means of maintaining liquidity position of a bank. Shares are sold with a perpetual maturity, with the added advantage that no interest or similar periodic payments have to be made.

As for insurance company's also known as institutional investors will have long investment horizons and will contribute to the stability and development of capital market. It may therefore be appropriate for insurance companies to engage in bond and equity markets. Moreover, the policy makers should aim to encourage the insurance development (especially life insurance); which will allow insurance companies to mobilize the significant stable resources for finance the economy through the purchase of financial assets.

Concerning long-term orientation of institutional investors' investment portfolios it is particularly recommended for policymakers to provide predictable macroeconomic and regulatory frameworks as well as effective enforcement of the rule of law and absence of corruption.

Therefore policy makers and stakeholders in the banking industry need to give it serious thought and consider crafting strategies to cope with the financial system changes and assure stable economic boost.

REFERENCES

Abata, M. A. (2014). Asset quality and bank performance: A study of commercial banks in Nigeria. *Research Journal of Finance and Accounting*, *5*(18), 39-44.

ABDUL, J. M. (2017). Impact of Capital Adequacy on the Performance of Nigerian Banks using the Basel Accord Framework. *East Africa Research Papers I Business, Entrepreneurship and Management. Jonkoping Sweden, Retrieved online from http://www. ju. se/earp*.

Abdullah, M. N., & Jahan, N. (2014). The impact of liquidity on profitability in banking sector of Bangladesh: a case of Chittagong stock exchange. *EPRA International Journal of Economic and Business Review*, *2*(10), 17-22.

Aburime, T. (2008). Determinants of bank profitability: company-level evidence from Nigeria. *Available at SSRN 1106825*.

Adebisi, J. F., & Matthew, O. B. (2015). The impact of non-performing loans on firm profitability: a focus on the Nigerian banking industry. *American Research Journal of Business and Management*, *1*(4), 1-7.

Afriyie, H. O., & Akotey, J. O. (2013). Credit risk management and profitability of rural banks in the Brong Ahafo Region of Ghana. *European journal of business and management*, *5*.

Ahokpossi, M. C. (2013). *Determinants of bank interest margins in Sub-Saharan Africa* (No. 13-34). International Monetary Fund.

Aidoo, M., & Mensah, F. S. (2018). Development of financial performance assessment indices for bank performance rating in Ghana. *Global Journal of Management And Business Research*.

Akinlo, A. E., & Egbetunde, T. (2010). Financial development and economic growth: The experience of 10 sub-Saharan African countries revisited. *The Review of Finance and Banking*, *2*(1).

Al-Nimer, M., & Sleihat, N. (2015). The effect of profitability ratios on market capitalization in jordanian insurance companies listed in amman stock exchange. *Journal of Economics and Sustainable Development*, *6*(6).

Almajali, A. Y., Alamro, S. A., & Al-Soub, Y. Z. (2012). Factors affecting the financial performance of Jordanian insurance companies listed at Amman Stock Exchange. *Journal of Management research*, *4*(2), 266.

Alshatti, A. S. (2016). Determinants of banks' profitability− the case of Jordan. *Investment Management and Financial Innovations*, *13*(1), 84-91. Alshatti, A. S. (2016). Determinants of banks' profitability− the case of Jordan. *Investment Management and Financial Innovations*, *13*(1), 84-91.

Al Shubiri, F. N., & Jamil, S. A. (2017). Assessing the determinants of interest rate spread of commercial banks in Oman: an empirical investigation. *European Research Studies*, *20*(2), 90.

Arena, M. (2008). Does insurance market activity promote economic growth? A cross-country study for industrialized and developing countries. *Journal of Risk and Insurance*, *75*(4), 921-946.

Arize, A., Kalu, E. U., & Nkwor, N. N. (2018). Banks versus markets: Do they compete, complement or Co-evolve in the Nigerian financial system? An ARDL approach. *Research in International Business and Finance*, *45*, 427-434.

Avkiran, N. K. (1997). Models of retail performance for bank branches: predicting the level of key business drivers. *International Journal of Bank Marketing*, *15*(6), 224-237.Bagehot, W. (1873). *Lombard Street: A description of the money market*. London: HS King.

Ayele, A. G. (2012). Factors Affecting profitability of insurance companies in Ethiopia: Panel evidence. *Addis Ababa University, Ethiopia*.

Bace, E. (2016). Bank profitability: Liquidity, capital and asset quality. *Journal of Risk Management in Financial Institutions*, *9*(4), 327-331.

Bagehot, W. (1873). *Lombard Street: a Description of the Money Market: By Walter Bagehot*. Henry S. King & Company 65 Cornhill & 12 Paternoster Row, London.

Baral, K. J. (2005). Research in Nepalese Finance. By Radhe S. Pradhan. Kathmandu: Buddha Academic Publishers & Distributors Pvt. Ltd. 2003. Pp. x+ 176. *Journal of Nepalese Business Studies*, *2*(1), 110-112.

Beccalli, E., Casu, B., & Girardone, C. (2006). Efficiency and stock performance in European banking. *Journal of Business Finance & Accounting*, *33*(1- 2), 245-262.

Bhandari, A., & Nakarmi, A. M. (2014). Performance evaluation of commercial banks in Nepal using AHP. *International Journal of the Analytic Hierarchy Process*, *14*(1), 1-25.

Bhattarai, Y. R. (2016). Effect of credit risk on the performance of Nepalese commercial banks. *NRB Economic Review*, *28*(1), 41-64.

Bhattarai, S., & Yadav, S. R. (2009). AHP application in banking: unfolding utility in a situation of financial crisis. In *Proceedings of International Symposium on Analytic Hierarchy Process, Pittsburgh, PA, USA*.

Boot, A. W., & Thakor, A. V. (1997). Banking scope and financial innovation. *The Review of Financial Studies*, *10*(4), 1099-1131.

Boot, A. W., & Thakor, A. V. (2010). The accelerating integration of banks and markets and its implications for regulation. *The Oxford handbook of banking*, 58-90.

Bossone, B., & Lee, J. K. (2004). In finance, size matters: The "systemic scale economies" hypothesis. *IMF Staff Papers*, *51*(1), 19-46.

Boyd, J., & Smith, B. (1996). The coevolution of the real and financial sectors in the growth process. *The World Bank Economic Review*, *10*(2), 371-396.

Bremus, F., & Stelten, R. (2017). *Capital market integration and macroeconomic stability* (No. 116). DIW Roundup: Politik im Fokus.

Brogaard, J., Ngo, P. T., & Xia, Y. (2019). Capital market development and financial system architecture: Evidence from stock market liquidity and bank syndicated lending. *Available at SSRN 3150149*.

Buchory, H. A. (2014). Analysis of the Effect of Capital, Credit Risk, and Profitability to Implementation Banking Intermediation Function (Study on Regional Development Bank All Over Indonesia Year 2012). *International Journal of Business, Economic, and Law*, *4*(1), 133-144.

Burca, A. M., & Batrinca, G. (2014). The determinants of financial performance in the Romanian insurance market. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *4*(1), 299-308.

Büyüközkan, G., Güleryüz, S., & Karpak, B. (2017). A new combined IF-DEMATEL and IF-ANP approach for CRM partner evaluation. *International Journal of Production Economics*, *191*, 194-206.

Catalan, M., Impavido G., and A. R. Musalem (2000). Contractual Savings or Stock Market Development: Which Leads? *Journal of Applied Social Science Studies*, 120(3): 445-87.

Cehulic, D., Hunjak, T., & Begicevic, N. (2011). Comparison of a bank's financial ratios using the Analytic Hierarchy Process. In *Central European Conference on Information and Intelligent Systems* (p. 187). Faculty of Organization and Informatics Varazdin.

Chen, Y. T. (2016). Applying the DEMATEL approach to identify the focus of library service quality. *The Electronic Library*.

Choong, C. K., Lam, S. Y., & Yusop, Z. (2010). Private capital flows to low- income countries: The role of domestic financial sector. *Journal of Business Economics and Management*, *11*(4), 598-612.

Cos¸kunY., Seven Ü., ErtugrulH.M. and UlusseverT., (2017). Capital market and economic growth nexus: Evidence from Turkey.*Central Bank Review 17, 19-29*

Cox, S. H., & Pedersen, H. W. (2000). Catastrophe risk bonds. *North American Actuarial Journal*, *4*(4), 56-82.

De Felice, F. (2012). Research and applications of AHP/ANP and MCDA for decision making in manufacturing.

De Felice, F., & Petrillo, A. (2014). Proposal of a structured methodology for the measure of intangible criteria and for decision making. *International Journal of Simulation and Process Modelling*, *9*(3), 157-166.

Deidda, L., & Fattouh, B. (2008). Banks, financial markets and growth. *Journal of Financial Intermediation*, *17*(1), 6-36.

Demirguc-Kunt, A., & Levine, R. (2001). Financial structure and economic growth: perspectives and lessons. *Financial structure and economic growth: A cross-country comparison of banks, markets, and development*, 3-14.

Dey, M. K. (2007). Are Banks and Stock Markets Complements or Substitutes? *Networks Financial Institute Working Paper*, (2007-WP), 04.

Elliott, D. J. (2015). Market liquidity: A primer. *The Brookings Institution. Paper*.

Erina, J., & Lace, N. (2013). Commercial banks profitability indicators: empirical evidence from Latvia. *IBIMA Business Review*, *2013*, 27-36.

Etale, L. M., Ayunku, P. E., & Etale, E. (2016). The impact of non-performing loans and bank performance in Nigeria. *International Journal of Humanities and Social Science Invention*, *5*(4), 1-5.

Fenn, G. W., & Cole, R. A. (1994). Announcements of asset-quality problems and contagion effects in the life insurance industry. *Journal of Financial Economics*, *35*(2), 181-198.

Ferrouhi, E. M. (2017). DETERMINANTS OF BANK PERFORMANCE IN A DEVELOPING COUNTRY: EVIDENCE FROM MOROCCO. *Organizations & Markets in Emerging Economies*, *8*(1).

Francis, B. B., Hasan, I., & Ofori, E. (2015). Investor protections, capital markets, and economic growth: The African experience. In *International Corporate Governance* (pp. 239-272). Emerald Group Publishing Limited.

Friedman, T. L. (2000). *The Lexus and the olive tree: Understanding globalization*. Farrar, Straus and Giroux.

Fontela, E., & Gabus, A. (1976). The DEMATEL observer, DEMATEL 1976 report. *Switzerland, Geneva, Battelle Geneva Research Center*.

Gabus, A., & Fontela, E. (1972). World problems, an invitation to further thought within the framework of DEMATEL. *Battelle Geneva Research Center, Geneva, Switzerland*, 1-8.

Gabus, A., & Fontela, E. (1973). Perceptions of the world problematique: Communication procedure, communicating with those bearing collective responsibility.

Geda, A. (2017). The historical origin of African economic crisis and its legacy: African international trade and finance–from colonialism to China. *Unprocessed, Department of Economics, Addis Ababa University, Ethiopia*.

Goddard, J., McKillop, D., & Wilson, J. O. (2008). The diversification and financial performance of US credit unions. *Journal of Banking & Finance*, *32*(9), 1836-1849.

Gonga, M. A., & Sasaka, P. S. (2017). Determinants of financial performance of insurance firms: A survey of selected insurance firms in Nairobi County. *The Strategic Journal of Business & Change Management*, *4*(4), 123-145.

Guerineau, S., & Sawadogo, R. (2015). On the determinants of life insurance development in Sub-Saharan Africa: the role of the institutions quality in the effect of economic development.

Gul, S., Irshad, F., & Zaman, K. (2011). Factors Affecting Bank Profitability in Pakistan. *Romanian Economic Journal*, *14*(39).

Güneş, N., & Yilmaz, A. (2016). Determinants of efficiencies in Turkish banking sector (Tobit analysis). *International Journal of Economics and Finance*, *8*(2), 215-225.

Guru, S., & Mahalik, D. K. (2019). A comparative study on performance measurement of Indian public sector banks using AHP-TOPSIS and AHP-grey relational analysis. *OPSEARCH*, *56*(4), 1213-1239.

Impavido, G., Musalem, A. R., & Tressel, T. (2003). *The impact of contractual savings institutions on securities markets*. The World Bank.

Ioannidis, C., Molyneux, P., & Pasiouras, F. (2008). The relationship between bank efficiency and stock returns: evidence from Asia and Latin America. *University of Bath, School of Management, Working Paper*, (2008.10).

Isik, I. (2007). Bank ownership and productivity developments: evidence from Turkey. *Studies in Economics and Finance*, *24*(2), 115-139.

Karr, J. (2005). Performance measurement in banking: beyond ROE. *Journal of Performance Management*, *18*(2), 56.

Kaminsky, G., & Schmukler, S. (2003). *Short-Run Pain, Long-Run Gain: The Effects of Liberalization on Financial Markets*. Working paper 9787. Cambridge, Mass.: National Bureau of Economic Research.

Kiran, K. P., & Jones, T. M. (2016). Effect of Non-Performing Assets on The Profitability of Banks–A Selective study. *International Journal of Business and General Management*, *5*(2), 53-60.

Kombo, K. N., & Njuguna, A. (2017). Challenges Facing Commercial Banks in the Implementation of Capital Adequacy Requirement in Basel III Framework. *American Journal of Finance*, *1*(4), 45-63.

KS, M. N., Thomas, A., & Abraham, C. M. (2018). Performance Evaluation of Public Sector Banks based on Camel Methodology. *Performance Evaluation*.

Kumbirai, M., & Webb, R. (2010). A financial ratio analysis of commercial bank performance in South Africa. *African Review of Economics and Finance*, *2*(1), 30-53.

Laeven, M. L. (2014). *The development of local capital markets: rationale and challenges* (No. 14-234). International Monetary Fund.

Lelissa, T. B. (2014). The determinants of Ethiopian commercial banks performance. *European Journal of Business and Management*, *6*(14), 52-62.

Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda ", Journal of Economic Literature, n 35.

Liargovas, P., & Skandalis, K. (2008). Factors affecting firms' financial performance. *The Case of Greece, University of Peloponnese*.

Lindblom, T., & Von Koch, C. (2002). Cross-border bank mergers and acquisitions in the EU. *Service Industries Journal*, *22*(4), 41-72.

Lipunga, A. M. (2014). Determinants of profitability of listed commercial banks in developing countries: Evidence from Malawi. *Research Journal of Finance and Accounting*, *5*(6), 41-49.

Lu, T. L., Wang, Y. C., & Lee, Y. C. (2013). A study on risk based banking supervision. *Business and Information*, 164-172.

Luthra, S., Govindan, K., Kannan, D., Mangla, S. K., & Garg, C. P. (2017). An integrated framework for sustainable supplier selection and evaluation in supply chains. *Journal of Cleaner Production*, *140*, 1686-1698.

Majumder, M., & Saha, A. K. (2016). *Impact of climate change on hydro-energy potential: A MCDM and neural network approach*. Springer.

Mamun, M. Z. (2010). PERFORMANCE EVALUATION OF GENERAL INSURANCE COMPANIES IN BANGLADESH: A 1991–2008 Analysis. *PERFORMANCE EVALUATION*.

Mandić, K., Delibašić, B., Knežević, S., & Benković, S. (2017). Analysis of the efficiency of insurance companies in Serbia using the fuzzy AHP and TOPSIS methods. *Economic research-Ekonomska istraživanja*, *30*(1), 550-565.

Mattana, E., & Panetti, E. (2014). Bank liquidity, stock market participation, and economic growth. *Journal of Banking & Finance*, *48*, 292-306.

McKinnon, R. I. (1973). Money and Capital in Economic Development (Washington: Brookings Institute).

Mehari, D., & Aemiro, T. (2013). FIRM SPECIFIC FACTORS THAT DETERMINE INSURANCE COMPANIES'PERFORMANCE IN ETHIOPIA. *European scientific journal*, *9*(10).

Merikas, A. G., & c, A. A. (2006). Stock prices response to real economic variables: the case of Germany. *Managerial Finance*, *32*(5), 446-450.

Mishkin, F. S. (2007). The economics of money, banking, and financial markets. Pearson education.

Mogbolu, F., & Tizhe, A.N. (2017). Capital Market Development and Banking Efficiency in Selected Sub-Saharan African Countries. *The international Journal of innovative research and development.*

Nyasha, S., & Odhiambo, N. M. (2013). The Brazilian stock market development: a critical analysis of progress and prospects during the past 50 years'. *Risk Governance & Control: Financial Markets & Institution*, *3*(3), 7-15.
Nyasha, S., & Odhiambo, N. M. (2017). Are banks and stock markets complements or substitutes? empirical evidence from three countries. *Managing Global Transitions*, *15*(1), 81-101.
Odhiambo, N. M. (2010). Finance-investment-growth nexus in South Africa: an ARDL-bounds testing procedure. *Economic Change and Restructuring*, *43*(3), 205-219.
Ohwofasa, B. O., & Aiyedogbon, J. O. (2013). Financial deepening and economic growth in Nigeria, 1986-2011: An empirical investigation. *Journal of Economics and development studies*, *1*(1), 24-42.
Olweny, T., & Shipho, T. M. (2011). Effects of banking sectoral factors on the profitability of commercial banks in Kenya. *Economics and Finance Review*, *1*(5), 1-30.
Ongore, V. O., & Kusa, G. B. (2013). Determinants of financial performance of commercial banks in Kenya. *International journal of economics and financial issues*, *3*(1), 237-252.
Osoro, J., & Osano, E. (2014). Bank-based Versus Market-based Financial System: Does Evidence Justify the Dichotomy in the Context of Kenya?. *Kenya Bankers Association Centre for Research on Financial Markets and Policy Working Paper, Series*, *10*.
Ozgur, O., & Gorus, M. S. (2016). Determinants of deposit bank profitability: evidence from Turkey. *Journal of Applied Economics and Business Research*, *6*(3), 218-231.
Ozurumba, B. A. (2016). Impact of non-performing loans on the performance of selected commercial banks in Nigeria. *Research Journal of Finance and Accounting*, *7*(16), 95-109.
Pasiouras, F., & Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in International Business and Finance*, *21*(2), 222-237.
Rachdi, H. (2013). What determines the profitability of banks during and before the international financial crisis? Evidence from Tunisia. *International Journal of Economics, Finance and Management*, *2*(4).
Rawlin, R., Shanmugam, R., & Bhat, V. (2015). A Comparison of the Effects of Key Determinants on Share Prices of India's Largest Public and Private Sector Banks. *Great Lakes Herald*, *9*(2).

Rezaei, M., & Ketabi, S. (2016). Ranking the banks through performance evaluation by integrating fuzzy AHP and TOPSIS methods: A study of Iranian private banks. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *6*(3), 19-30.

Robinson, J. (1952). The Generalization of the General Theory, in: The Rate of Interest and Other Essays (MacMillan, London).

Rogers, M. (2018). Financial Institutions and Markets. In *An Economist's Guide to Economic History* (pp. 87-94). Palgrave Macmillan, Cham.

Ruecker, R., & Shiferaw, K. (2011). *Market potential assessment and road map development for the establishment of capital market in Ethiopia*. Addis Ababa Chamber of Commerce and Sectoral Associations.

Saaty, T. L. (1980). The analytical hierarchy process, planning, priority. *Resource allocation. RWS publications, USA*.

Saaty, T. L. (1982). The analytic hierarchy process: A new approach to deal with fuzziness in architecture. *Architectural Science Review*, *25*(3), 64-69.

Saaty, T. L. (1990). How to make a decision: the analytic hierarchy process. *European journal of operational research*, *48*(1), 9-26.

Shahnawaz, S. (2018); Performance Analysis of Indian Life Insurance Companies using the Analytic Hierarchy Process; International Journal of Scientific and Research Publications, 8(8), 2250-3153.

Samad, A. (2004). Performance of Interest-free Islamic banks vis-à-vis Interest-based Conventional Banks of Bahrain. *International Journal of Economics, Management and Accounting*, *12*(2).

Sambasivam, Y., & Ayele, A. G. (2013). A study on the performance of insurance companies in Ethiopia. *International Journal of Marketing, Financial Services & Management Research*, *2*(7), 138-150.

Sayari, K., & Shamki, D. (2016). Commercial Banks Profitability and Stock Market Developments. *Journal of Applied Finance and Banking*, *6*(4), 43.

Schumpeter, J. (1911). The theory of economic development. Harvard Economic Studies. Vol. XLVI.

Sharma, S. D. (2018). *The Asian financial crisis: Crisis, reform and recovery*. Manchester University Press.

Shaw, E. S. (1973). Financial deepening in economic development.

Skipper, H. D. (1997). *Foreign insurers in emerging markets: Issues and concerns* (No. 1). Washington, DC: International Insurance Foundation.

Song, F., & Thakor, A. V. (2010). Financial System Architecture and the Co-evolution of Banks and Capital Markets. *The Economic Journal*, *120*(547), 1021-1055.

Song, F., & Thakor, A. (2011). Financial markets, banks, and politicians. *Unpublished working paper. Penn State University and Washington University in St. Louis*.

Staikouras, C. K., & Wood, G. E. (2004). The determinants of European bank profitability. *International business and economics research journal*, *3*, 57-68.

Stankevičienė, J., & Mencaitė, E. (2012). The evaluation of bank performance using a multicriteria decision making model: a case study on Lithuanian commercial banks. *Technological and economic development of economy*, *18*(1), 189-205.

Supeekit, T., Somboonwiwat, T., & Kritchanchai, D. (2016). DEMATEL-modified ANP to evaluate internal hospital supply chain performance. *Computers & Industrial Engineering*, *102*, 318-330.

Taddess F. (2019). Central Bank avails 5.5Birr Loan to cash-strapped banks. *Addis Fortune magazine.*

Thiagarajan, S. (2018). An analysis of performance of commercial banks in Belize during post global recession period. *The Journal of Finance*, *6*(2), 33-47.

Turner, P. (2002). Bond Markets in Emerging Economies: An overview of policy issues". BIS Paper No. 11. The Development of Bond Markets in Emerging Economies. June 2002: 1-12.

Valahzaghard, M., & Ferdousnejhad, M. (2013). Ranking insurance firms using AHP and Factor Analysis. *Management Science Letters*, *3*(3), 937-942.

Vardar, G. (2013). Efficiency and Stock Performance of Banks in Transition Countries: Is There A Relationship?. *International Journal of Economics and Financial Issues*, *3*(2), 355-369.

Wu, Y. C., Ting, I. W. K., Lu, W. M., Nourani, M., & Kweh, Q. L. (2016). The impact of earnings management on the performance of ASEAN banks. *Economic Modelling*, *53*, 156-165.

Yildirim, I., & Cakar, L. R. (2015). A study on the collaboration opportunities between Universities and insurance industries in Turkey. *Advances in Social Sciences Research Journal*, *2*(9), 163-172.

Zagherd, M. K. W., & Barghi, M. (2017). Performance Evaluation of Iranian Banking Industry through CAMELS Framework. *J Account Mark*, *6*(228), 2.

Zhou, X., Shi, Y., Deng, X., & Deng, Y. (2017). D-DEMATEL: A new method to identify critical success factors in emergency management. *Safety science*, *91*, 93-104.

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Appendixes

Appendix I

Questionnaire

Dear sir/Madam

My name is Mekdes Bulti and I am currently doing my Master's degree in Business Administration at Addis Ababa University, Faculty of Business and Economics. I have finished my course work and now I am doing my MBA thesis entitled: An exploratory study on capital market development and performance of financial institutions in Ethiopia.

I believe your experience and educational background will greatly contribute to the success of my research which is aimed at contributing to the banking and insurance industry at large. So it's with great respect that I ask you to fill this questionnaire with upmost **HONESTY** &**SINCERITY**. I guarantee that your identity will be kept confidential and the information you provide will only be used for academic purposes. I will be happy to share the findings of this research when it's completed.

Thank you in advance for taking your precious time to fill this questionnaire. Please try to answer all the questions openly, as your answers will have an influence on the outcome of the research. Your 15 minutes or less will greatly contribute to the growth and advancement of knowledge in the banking and insurance industry.

If you have any questions or comments, please don't hesitate to contact me. You can reach me by;

- Mobile: +251911-120697
- E-mail: mekdi.b@gmail.com

With Regards,

Mekdes Bulti

This study entitled "***An exploratory study on capital market development and performance of financial institutions in Ethiopia***" is designed to identify potential benefits or potential treats capital market might bring towards the banking and insurance industry. The information you provide will be used purely for academic purpose and will be kept confidential. Participation in this study is absolutely voluntary. Please answer with HONESTY & SINCERITY.

1. SECTION ONE: GENERAL PROFILE OF THE RESPONDENT

1.1. Gender: _____
1 = Male 2 = Female
1.2. Age: _____
1 = 20-25 3 = 31-40
2 = 26-30 4 = 41-50

1.3. Highest educational level: _____
1 = Diploma
2 = BSc/BA
3 = MSc/MA/MBA
4 = PHD
1.4. Job category: _____
1.5. Job title: _____
1 = Senior Management
2 = Middle Management
3 = Top Management
4 = Others: _____

1.6. Years of experience:
a) In the banking and insurance industry: _____
1= < 1 year 2= 1-5years
3= 6-10 years 4= >10years

b) In regulatory government organizations and academic institutions : _____
1= < 1 year 2= 1-5years
3= 6-10 years 4= >10years

2. SECTION TWO: Criteria ranking

Please indicate your opinion by ticking on the appropriate box for the questions:

Questionnaires were designed with the purpose of letting each participant to do pairwise comparisons taking into account the relative importance of each criterion with all the criteria in the same category.

Comparisons shall be made based on Semantics scale of Saaty.

Intensity of importance	Definition
1	Equal Importance
3	Moderate importance
5	Strong importance
7	Very strong or demonstrated importance
9	Extreme importance
2,4,6,8	For compromise between the above values

2.1 Criteria evaluation for bank performance indicators.

(Remark: Banking operation experts.)

According to your experience, how important is each criteria on the left compared to each criteria on the right in measuring bank performance?

No	Description	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Description
1	Liquidity																		Efficiency
2	Liquidity																		Profitability
3	Liquidity																		Capital adequacy
4	Liquidity																		Asset quality
5	Efficiency																		Profitability
6	Efficiency																		Capital adequacy
7	Efficiency																		Asset quality
8	Profitability																		Capital adequacy
9	Profitability																		Asset quality
10	Capital adequacy																		Asset quality

`

2.2 Sub – criteria evaluation for bank performance indicators

(Remark: Banking operation experts.)

According to your experience, how important is each criteria on the left compared to each criteria on the right in measuring bank liquidity?

No	Description	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Description
1	liquid asset / total asset																		liquid asset / demanded deposits
2	liquid asset / total asset																		liquid asset / total deposit
3	liquid asset / demanded deposits																		liquid asset / total deposit

According to your experience, how important is each criteria on the left compared to each criteria on the right in measuring bank efficiency?

No	Description	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Description
1	total advances / total deposit																		to earnings before tax / total revenue
2	total advances / total deposit																		Total revenue/total number of employee
3	earnings before tax / total revenue																		Total revenue/total number of employee

According to your experience, how important is each criteria on the left compared to each criteria on the right in measuring bank profitability?

No	Description	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Description
1	Profit before taxes / equity																		Profit before taxes / asset
2	Profit before taxes / equity																		interest income / total revenue
3	Profit before taxes / asset																		interest income / total revenue

`

According to your experience, how important is each criteria on the left compared to each criteria on the right in measuring bank capital adequacy?

No	Description	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Description
1	total debt / total asset																		total equity/total asset
2	total debt / total asset																		total capital / risk weighted asset
3	total equity/total asset																		total capital / risk weighted asset

According to your experience, how important is each criteria on the left compared to each criteria on the right in measuring bank asset quality?

No	Description	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Description
1	allowance for doubtful loans / total assets																		loan loss reserves / outstanding loans
2	allowance for doubtful loans / total assets																		non –performing loans/ total loans outstanding
3	loan loss reserves / outstanding loans																		non –performing loans/ total loans outstanding

2.3 Criteria evaluation for insurance performance indicators.

(Remark: Insurance company operation experts.)

According to your experience, how important is each criteria on the left compared to each criteria on the right in measuring insurance performance?

No	Description	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Description
1	Profitability																		Operating growth
2	Profitability																		Asset quality
3	Profitability																		Solvency
4	Operating growth																		Asset quality

`

5	Operating growth																	Solvency
6	Asset quality																	Solvency

2.4 Sub – criteria evaluation for insurance performance indicators.

(Remark: Insurance company operation experts.)

According to your experience, how important is each criteria on the left compared to each criteria on the right in measuring insurance profitability?

No	**Description**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Description**
1	Net asset yield																		Total return on asset
2	Net asset yield																		Income profit
3	Net asset yield																		Expenditure margin
4	Net asset yield																		Return on investment
5	Total return on asset																		Income profit
6	Total return on asset																		Expenditure margin
7	Total return on asset																		Return on investment
8	Income profit																		Expenditure margin
9	Income profit																		Return on investment
10	Expenditure margin																		Return on investment

According to your experience, how important is each criteria on the left compared to each criteria on the right in measuring insurance operating growth?

No	**Description**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Description**
1	Premium growth																		Profit growth rate
2	Premium growth																		Economic profit margins
3	Profit growth rate																		Economic profit margins

`

According to your experience, how important is each criteria on the left compared to each criteria on the right in measuring insurance asset quality?

No	Description	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Description
1	Tangibility of assets																		Recognized asset rate
2	Tangibility of assets																		accounts receivable ratio
3	Recognized asset rate																		accounts receivable ratio

3. SECTION THREE: Criteria interdependency

Please indicate your opinion by ticking on the appropriate box for the questions:

Level of influence	Definition
0	No influence
1	Low influence
2	Medium influence
3	High influence
4	very high influence

3.1 List and label of factors.

Label	Description
F1	Market capitalization of banks
F2	Trade volume of banks (annual average)
F3	Liquidity of banks
F4	Efficiency of banks
F5	Profitability of banks
F6	Capital adequacy of banks
F7	Asset quality of banks

3.2 Criteria interdependency evaluation for stock market and bank performance indicators.

	F1	F2	F3	F4	F5	F6	F7
F1	**0**						
F2		**0**					
F3			**0**				
F4				**0**			
F5					**0**		
F6						**0**	

F7							**0**

3.3 List and label of factors.

Label	**Description**
F1	Market capitalization on capital market.
F2	Trade volume on capital market.
F3	Profitability of insurance companies.
F4	Operating growth of insurance companies.
F5	Asset quality of insurance companies.
F6	Solvency of insurance companies.
F7	Management quality of insurance companies.

3.4 Criteria interdependency evaluation for stock market and insurance firm performance indicators.

	F1	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**
F1	**0**						
F2		**0**					
F3			**0**				
F4				**0**			
F5					**0**		
F6						**0**	
F7							**0**

4. SECTION FOUR: Capital market level of awareness measures

(Remark: Bank and insurance company operation experts.)

Please indicate your opinion by ticking on the appropriate box for the five-point scale questions:

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE
5	4	3	2	1

No.	Description	Degree of agreement				
		5	4	3	2	1
1	Management of the bank/ insurance company should have adequate awareness about capital market system introduction in the financial system.					
2	The management of the bank/ insurance should establish a team to be trained about capital market operation.					
3	The trained staff (if there is) should prepare strategies to cope with changes capital market will introduce to the financial structure.					
4	Capital market will be complementary to the financial systems and there is no need for preparation.					

Thanks for your time.

`

Appendix II

Interview

Interview questions

Capital market and bank performance interaction questions. **(Remark: Banking operation experts.)**

1. Why do we need capital market?
2. What are the most critical indicators of performance in the Ethiopian banking industry?
3. What is your view of capital market in terms of it being complementary or substitute to the existing bank services and operations?
4. Which of the above performance indicators mentioned above are directly related with capital market and how?
5. What are the potential contributions and awaiting challenges capital market might bring towards performance of banks?
6. Is there any strategy in progress which is being followed with in the bank or formal documented process on how to manage the upcoming competition?
7. Are strategy team members within the bank aware of the upcoming financial system shift the introduction of capital market is going to bring? Are they given any kind training to develop their knowledge and awareness on capital market and the change it is going to bring in the financial system?
8. Is there a strategy that you suggest that could be applicable for banks in terms of areas they should strengthen their performance on that could help the be beneficiaries of this new market system? Possibly using key performance indicators?

Capital market and insurance performance interaction questions. **(Remark: Insurance company operation experts.)**

1. Why do we need a capital market?
2. What are the most critical indicators of performance in insurance companies?
3. What is your view of capital market in terms of it being complementary to the existing insurance services?
4. Which of the above performance indicators mentioned above are directly related with capital market and how?
5. What are the potential contributions and awaiting challenges capital market might bring towards performance of insurance companies?

6. Is there any strategy in progress which is being followed with in the insurance company or formal documented process on how to manage the upcoming competition?
7. Are strategy team members within the insurance company aware of the upcoming financial system shift the introduction of capital market is going to bring? Are they given any kind of training to develop their knowledge and awareness on capital market and the change it is going to bring in the financial system?
8. Is there a strategy that you suggest that could be applicable for insurance companies in terms of areas they should strengthen their performance on that could help t be beneficiaries of this new market system? Possibly using key performance indicators?
9. Is there any comment on the interview that you think that should have been included that could help this study?

Appendix III

Interview protocol

1. Interviews will be conducted in the place of convenience for respondents.
2. The purpose of the interview will be explained to the respondents before the interview starts.
3. The confidentiality of their answers will be explained. The researcher will guarantee the respondents identity will not be revealed in the research paper and their answers will only be used for this study only and analysis method will be elaborated. If their comments are to be used as a caught the researcher will ask for a written permission on address terms of confidentiality.
4. The interview questions will be open ended, and it will be explained to respondents to wait until the end of the interview for and questions or suggestions.
5. The interview will take up to one hour.
6. The researcher will ask for any questions before both get started with the interview.
7. The researcher will ask for permission to record the interview or bring along someone to take notes.
8. Researcher will often verify the tape recorder for functionality.
9. Researcher will ask one question at a time.
10. Researcher will remain neutral and great care should be taken while taking notes and displaying inappropriate facial expression at all times.
11. Researcher will provide transition between major topics and stay in control of the interview at all times to guarantee focus on the needed subject.
12. At the end of the interview the researcher will:
    a. Make sure the recorder is still working.
    b. Finalize clarification on the written note.
    c. Write down any observation and unforeseen circumstances made during the interview.
    d. Express gratitude to the respondent leave contact information for further questions and end the interview.

Appendix IV

List of interview participants and research meetings.

No	Date	Participants
1	29/08/19@4.00 pm	Fairfax Africa Fund, LLC (U.S). Ato Zemedeneh Nigatu (CEO)
2	22/08/19@5.00 pm	Awash Insurance Company S.C. Ato Jibat (Director of claim)
3	21/08/19@3.00 pm	Awash Bank S.C. Ato Henock Tessema(V.P retail banking)
4	20/08/19@2.00 pm	Addis Ababa University. Pro. Alemayehu Geda
5	26/08/19@3.00 pm	United insurance. Ato Zafu Eyesuswork Zafu (Board chairman)
6	12/10/19@9.00 am	Awash Insurance Company S.C. CEO Ato Tsegaye Kemsi
7	14/10/19@9.00 am	Commercial Bank of Ethiopia. Ato Dereje Fufa. Chief whole sale banking.