A STUDY ON THE PERFORMANCE OF INSURANCE COMPANIES IN PAKISTAN: AN APPLICATION OF PANEL DATA APPROACH

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CERTIFICATE

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Dedicated to My beloved

Parents

Whose prayers for me, were what sustained me thus far

DECLARATION

I Mr. Shakeel Shahzad, solemnly declare that this is an original piece of my work. I am the sole author of this thesis and that during the period of registered study. This work has not been submitted for an award of a degree in any other University.

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Interdependence is a higher value than independence.

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ABSTRACT

This study analyzes the financial performance of Pakistan insurance industry during the period 2004-2014 in an attempt to assess future growth and potential. Though the growth of Pakistan insurance industry is satisfactory. Performance of Pakistan insurance industry has been analyzed through different profitability measure i.e. Return on Asset, Return on Equity and Return on invested capital as well as the impact of insurance industry on financial development sector of Pakistan.

Life Insurance Companies of Pakistan have positive and significant effect and have proper role of leverage, age, risk, corporate governance and macroeconomics variables (Inflation and GDP Growth) on profitability of insurance companies in Pakistan. Whereas, liquidity, tangibility, premium growth are found insignificant.

Non-Life Insurance Companies of Pakistan has positive and significant effect of leverage, Premium Growth, risk, CG and liquidity on profitability of insurance companies, while age, tangibility, inflation are non-significant and does not play a key role in profitability of insurance companies of Pakistan.

Life and Non-Life Insurance Companies in Pakistan has significant effect of insurance specific variables, corporate governance and macroeconomics variables on profitability of life and Non-life (both) insurance companies of Pakistan.

The thesis evaluates long run and short run relationship among insurance business and financial development sector. The results show that insurance business positively affects financial development sector in short run as well as in long run and have positive impact on financial sector development.

Keywords: Profitability, Performance, Financial Development,. Corporate Governance,

Chapter 1

INTRODUCTION

1.1 Background of the Study

In recent years, public experts have focused their attention on stability of financial institutions like banks and insurance companies. The insurance sector is contributing a noteworthy role in performance of the economy in a country and its services are now being merged into wider financial industry. In case of Pakistan, insurance companies have explicit performance and act as financial intermediaries. Insurance companies including life and non-life entails the organizations and firms which deliver life, accident, causality, fire, and many other sorts of insurance.

The performance of any entity including insurance companies or any others firms is participating to increase the market value of that specific company as well as also leads towards the growth of the whole industry which eventually pointers towards the overall prosperity of the economy. Judging the performance of insurers has gained significance in the corporate finance literature because as intermediaries, companies are not only facilitating the apparatus of risk allocation but also helps to mobilize the funds in an suitable way to backing the business deeds in the economy (IAP, 2014).

Insurance entities have significant both for businesses and single investors as they pay costs to the losses and put them in the same situations as they were before the event of the loss. In addition, insurers make help in economic and social aids in the society i.e. prevention of losses, decline in restlessness, distress and increasing employment. Therefore, the current world of

business without insurance sector is unsustainable as risky industries have not a capability to maintain all types of risk in current predominantly indeterminate environment.

Researches on impact of numerous variables on profitability of the insurance companies have been conducted in different countries e.g. India, Malaysia, Ethiopia, Poland Tunisia & Ghana etc. (Boadi, Antwi, & Lartey, 2013; Charumathi, 2012; Derbali, 2014; Ismail, 2013; Kozak, 2011; Sambasivam & Ayele, 2013).

The global crisis in 2008, research on financial institution has been started in many countries. Considerable research has been done on the firm's explicit variables, micro economics variables as well as macroeconomic variables. (Kozak, 2011) have observed determinants of profitability of non-life insurance companies in Poland. (Pervan, Curak, & Mariajnovic, 2012) have studied the factors of the profitability of the Croatian composite insurers' between 2004 and 2009. (Sambasivam & Ayele, 2013) have examined the internal factors affecting profitability of insurance companies as measured by ROA.

Similarly in Pakistan, there are little researches have been conducted regarding insurance sectors on performance of insurance companies. Concerning determinants of insurance companies in Pakistan, few scholars has investigated only specific variables influence for "life and Non-life insurance companies" i.e. the determinants of Pakistan's insurance companies profitability proxy by ROA (Ahmed, Ahmed, & Usman, 2011; Malik, 2011; Sumaira & Amjad, 2013).

Keeping in view importance of insurance companies, since most of the studies previously focus on banks not on insurance companies as well as some focus on only analysis of insurance specific variables. There is on study which takes into account corporate governance and macroeconomics variables as determinant of insurance performance though good practice and economic condition have impact on insurance performance. This is the main motivation to

undertake this study that analyzes the impact of good governance practices and economic conditions of the country along with insurance specific variable on the performance of insurance companies. Corporate governance is also a central subject and a segment of expenses is allotted by the[1] insurance entity to get in compliance with the rules of corporate governance. It comes under the class of ethics and principles that insurance companies need to uphold. It is significant to confirm whether adaptation of corporate governance backs in profitability or it has no power on profitability which is well-thought-out as one of the vital factor with reference of which insurance companies function. Furthermore, macroeconomic variables stand essential in defining profitability. Subsequently, it is believed that these variables are noteworthy to this study and determine with an improved indulgent of the performance of different factors on the simple intention of the insurance business in Pakistan. Therefore, this study combines insurance specific , corporate governance and macroeconomic variables to check empirically performance of insurance companies in Pakistan.

On the other hand insurance business has role on the financial development of country (Cristea, Marcu, & Cârstina, 2014; Haiss & Sümegi, 2008; Oke, 2012). That encourages to undertake analysis how insurance specific variable effects the financial development of the Pakistan where financial development is captured by financial deepening proxied by money supply (M2/GDP) to GDP ratio[2]. These two motivations lead to split the analysis into two parts. In the first part the determinants of insurance companies (insurance specific , corporate governance and macroeconomic variables) are regressed against performance indicators. This study uses three indicators for this purpose namely return on assets (ROA), return on equity(ROE) and return on

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[1] "The Insurance "means all life and Non- life insurance companies in Pakistan.
[2] In the literature other proxies for financial development are also used for example private credit to GDP, M2/GDP (Cristea et al., 2014; Kar & Pentecost, 2000; Khan, 2008; Odhiambo, 2005; Oke, 2012; Omoke, 2011) .

invested capital (ROIC). In the second part under current study analyze impact of performance of insurance companies on financial development of Pakistan.

1.2 Research Gap

Various studies have been directed to investigate the impact of insurance specific variables and macroeconomic variables on the return on asset. Some study investigates only insurance specific variables for life insurance companies and some studies focus only on insurance and takaful. Limited homework has been complemented to explore the combine impact of insurance specific and macroeconomics variables on return on assets.

In Pakistan only insurance specific variables have been investigated for life insurance companies. (Ahmed et al., 2011) While some for Life and Non-life insurance companies (Malik, 2011; Sumaira & Amjad, 2013).

This study investigates performance of insurance companies for:

1. Insurance specific variables
2. Corporate governance
3. Macroeconomic variables

For Life insurance companies, Non-Life insurance companies as well as all Life and Non- Life insurance companies. Profitability proxies by:

1. Return on assets (ROA)
2. Return on equity (ROE)
3. Return on invested capital (ROIC).

The research will also investigate the impact of Insurance sector on financial development sector of Pakistan.

1.3 Objectives of the Study

The key objective of the study is to examine insurance specific , corporate governance and macroeconomic variables which effect insurance sector of Pakistan as well as to investigate impact of insurance sector on financial development sector in Pakistan. More specifically the objectives are:

I. To examine the effect of insurance company's specific, corporate governance and macroeconomic variables on the profitability of the insurance companies of Pakistan.

II. To examine the effect of insurance company's specific, corporate governance and macroeconomic variables on the profitability of life insurance and non-Life insurance companies of Pakistan.

III. To investigate impact of insurance sector on financial development sector of Pakistan.

1.4 Significance of the Study

My work provides empirical evidence on the internal specific variables, corporate governance and macroeconomics variables of insurance companies in Pakistan as well as its impact on financial development in Pakistan during 2004 - 2014. It becomes helpful for administrations who are concerned in identifying indicators of success and failure to take the necessary actions to improve the performance of the company and choose the right decisions. The findings of this study in beneficial for government as government is always interested to differentiate which companies function successfully or unsuccessful to take the necessary measures to evade crises of the bankruptcy in such type of companies. Investors can get benefit as their fear studies like

these in order to guard their investment, and directing it to the optimal returns. Customers are also concerned to have knowledge that the capability of insurance companies to pay their debts based on the factors of success of the companies. The results of my study of particular importance for policymakers who seeks a better understanding of the determinants of financial development. The study results provides them information necessary to determine policies for their insurance various types of packages, such as life insurance packages, health insurance packages, car insurance packages and policies for these packages. My study will fulfill as a stepping stone for advance research in the insurance area of Pakistan.

1.5 Organization of the Study

The study consists six chapters, where chapter one present's background, purpose and significance of study along with the organization of the study complete under the heading of introduction. Chapter two covers the history and development of insurance sector in Pakistan along with the issues that the insurance sector is facing currently. Third chapter is about the review of literature that organizes the theoretical framework and empirical literature on profitability and performance of insurance sector around the globe; later have a glimpse on the research questions and hypothesis design for this study. Chapter four highlights the sample data, the sources from where the data is collected and methodology along with the multiple regression models that are used for estimation. Chapter five covers the results and the findings of the regression models and defines empirically the relationship that exists between profitability indicators i.e. ROA, ROE and ROIC with insurance specific, corporate governance and macroeconomic variables, Chapter six provides conclusion of the paper, further it puts a light on recommendations and potentials for future research.

Chapter 2

INSURANCE INDUSTRY IN PAKISTAN

This chapter emphases a brief history of insurance sector in section 2.1. Section 2.2 discusses insurance definition and insurance overview in Pakistan, section 2.3 points the major issues that are associated with insurance sector and section 2.4 shows the graphical presentation of insurance sector history of Pakistan.

2.1 A Brief History

From the very beginning of civilization men have made societies whose member's promises to help and each other's in the event of misfortune which leads us back to 900 BC. The modern concept of insurance where insurer collects small premiums from their policy holders and pay claims to those of them who have incurred losses and make profit for taking risks after deducting business expenses leads us back to 1300 Century. Life insurance starts from 1500 century, Fire insurance in 1600s, Accident insurance was developed in 1840. British were the principal marine insurance in London in 1570 to transact marine insurance. Similarly, with the inventions of automobiles, motor and vehicle insurance clauses were included in insurance sector.

Modest period starts from 17th century with the coffee-house in London Lloyd's today are the world's leading insurance market. The trends were moved to maximum of countries and even now this has become one of financial sector of the economy and plays a keen role in GDP of each and every country.

Some statistics about world countries are stated below:

Table 2.2 Insurance in low and high HDI countries

Insurance rank by volume 2006	Country	GDP per capita (PPP US$) 2004	Insurance Premium ($US million) 2006	Insurance* density 2006 $ per capita	Insurance* penetration 2006 (%)	% share of world market 2006
9	China	5,896	70, 805	53.5	2.7	1.90
15	India	3,139	43, 032	38.4	4.8	1.16
58	Pakistan	**2,225**	**949**	**5.9**	**0.8**	**0.03**
79	Srilanka	4,390	444	21.3	1.6	0.01
84	Bangladesh	1,870	375	2.6	0.6	0.01

HDI (Human development index) – composite index based on life expectancy, educational attainment and standard of living. A HDI value equal to or more than 0.800 has high human development, 0.500-0.799 HDI has medium human development and a HDI below 0.500 reflects low human development and well being.

Sources: UNDP (2006), Sigma (2006), Sigma (2007), *www.islamicpopulation.com*

2.2 The Insurance Reforms in Pakistan

Insurance is a contract in which the insured transfers risk of loss to the insurer who promises to compensate the former upon suffering loss. Afterwards the insured then pays an agreed money or fee called a premium amount against the promise. There are two parties in this transaction. The promisor is called the insurer while the promise is called insured (Lowe, 1999). Insurance premium amount is the monetary consideration paid by the insured to the insurer against the risk taken under certain insurance policy. The insurer takes on a number of customers "insured" that pay small premium amount which forms an aggregate fund called premium fund (Norman, 2000).

The statistical results of past experience in order to determine the amount of premiums that would be required to accumulate a common fund to meet the losses upon their arising. (Grose, 1992).

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There are two types of insurance business in Pakistan: life insurance and general insurance. Life insurance business is concentrated in two major areas: individual and group life insurance. Individual life insurance has greatest share in the life insurance business (i.e.79%). Both individual and group life insurance constitutes about 99% of total life insurance business in the country. Other types of life insurance products like annuity plan, pension plan, children education plan and accident & health insurance are not much popular and have negligible share of about 1% share in total life insurance business (IAP, 2006).

Thus it seems that insurance sector not only facilitates economic transactions through risk transfer but it also promotes financial intermediations (Woard and Zerbruegg, 2000). Insurance provides economic protection from identified risks occurring or discovered within a specified period. According to (Skipper, 2001) insurance can have effects such as promotes financial stability, mobilize saving, facilitate trade and commerce, enabled risk to manage more efficiently, encourage loss mitigation, foster efficient capital allocation as well as can be a substitute for and complement government security programs. Bringing views of (Bodla, Garg, & Singh, 2003) a strong and well-regulated insurance industry can significantly contributes to economic growth and efficient resource allocation through risk transfer of risk and mobilization of saving. It also enhances financial system efficient by reducing transaction costs, creating liquidity and facilitating economies of scale in investment.

The history of Pakistan shows that insurance industry has gone through a long process of evolution. Sixty eight years since to independence the insurance sector has changed radically. The insurance industry existed in pre partition era but after partition in 1947, Pakistan had seventy seven insurance companies which had different branches located in East and West Pakistan, Seventy of these companies are foreigner companies. Today there are thirty eight

companies which are registered in Insurance Association of Pakistan (IAP) & which are operating general business. They offer different services, like fire, marine, motor & accidents etc. The insurance companies who had Pakistani owners shifted their insurance companies to Pakistan and started business in his own country.

In case of Pakistan, the role of the government has been influential in the development of the insurance and reinsurance sectors since independence. From safeguarding the interest of the policyholders by creating the office of the department of insurance, which was later changed to the controller of insurance, to the establishment of Pakistan Reinsurance Corporation (presently called Pakistan Reinsurance Company Limited, PRCL) in 1953, the government has dynamically promoted insurance services in the country. Furthermore, the National coinsurance scheme (NCS) was established in 1955 to assist small insurance companies in resolving financial issues related to solvency / leverage positions, etc. With nationalization in full swing in the year 1973, the government focused on strengthening the life insurance sector by merging forty one small life insurance companies and establishing the State Life Insurance Corporation (SLIC), which is the largest insurance company in Pakistan. In the non-life sector, the government established the National Insurance Corporation (presently National Insurance Company Limited, NICL) in 1976. The security and exchange commission of Pakistan has been regulating the insurance industry since January 2001 after it took over from the controller of insurance operating under Ministry of Commerce, Government of Pakistan. The SECP regulates and monitors the insurance industry in the country through powers vested in the Insurance Ordinance, 2000 and the Companies Ordinance, 1984.

The insurance ordinance was promulgated in 2000, where its primary objective is to better regulate the business, ensure better protection and interest of the policy holders as well as to

promote sound development of the insurance industry. The ordinance has also laid down well-defined criteria for the recruitment of insurance employees, brokers, surveyors, to encourage professionalism within the industry to better protect the interest of the insurers. (IAP, 2014)

2.3 Issues of Insurance Industry in Pakistan

Since every industry or sector of financial development faces some problems in economy of a country. Insurance industry also faces some problems which are:

- ➢ Limitation on expenses of management

- ➢ Increased tax rate on dividend income from 5 to 33 per cent

- ➢ Capital gains tax— exemption not continued

- ➢ Tax reserves

To solve such issues of insurance business in Pakistan, security and exchange commission of Pakistan (SECP) has the main responsibility to take some measure for solution; SECP has offered their services from time to time in shape of insurance ordinance Act, 2000, insurance rules, 2002 as well as sound companies management rules, 2012. In addition to the above rules and laws, many others laws are also govern by SECP like, companies ordinance, 1984, etc.

2.4 Graphical Representation of Insurance Industry in Pakistan

The following graphs show insurance penetration of insurance industry from 2008 to 2014. Insurance penetration refers to a product's sales volume relative to the sales volume of competing products. Usually expressed as a ratio of premium to another financial measure like Gross Domestic Product. Graph one indicates the insurance penetration in percent rate of the share in GDP by the insurance industry over the years from 2008 to 2014.

Figure 1 Insurance Penetration 2008-2014
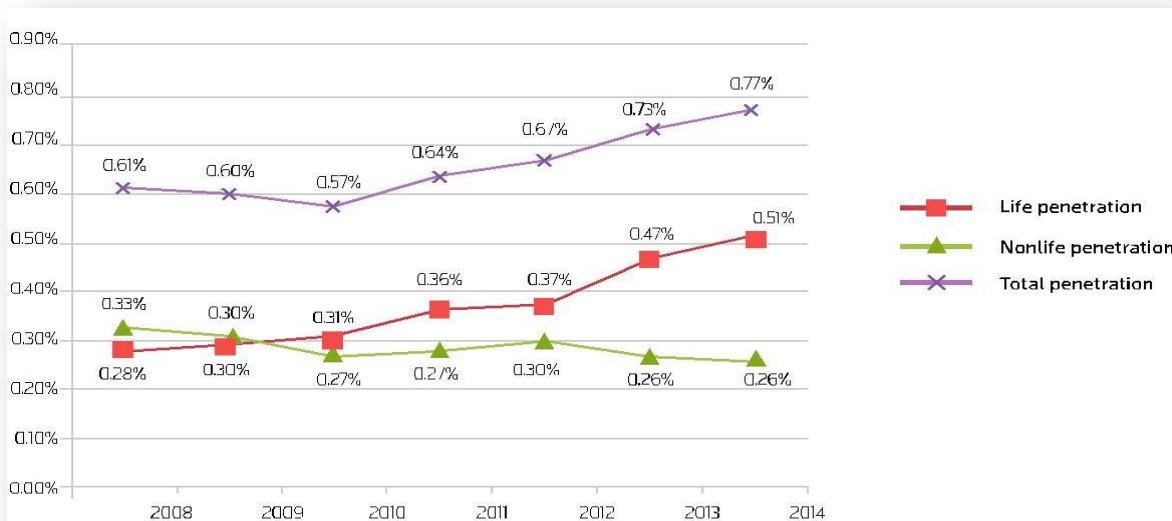
Graph two indicates the insurance density. Insurance density is used as an indicator for the development of insurance within a country and is calculated as ratio of total insurance premiums to whole population of a given country. Insurance industry graph indicates the trend of growth in insurance industry as well as premium under written from the year 2008 – 2014.

According to the report of security and exchange commission of Pakistan (2014), the insurance market is fairly slackened as 100% foreign ownership and control of insurance companies is permitted with the paid-up capital requirement of $4 million, with the condition of bringing in at least $2 million in foreign exchange and raising the rest from the local market. Rs. 300 million is the minimum capital requirements stand at for non-life and Rs. 500 million for life insurers.

However, the SECP is in the stepping forward and plan for future of revising minimum paid-up capital requirements for both non-life and life insurers, increasing them to Rs. 500 million and Rs. 700 million respectively till December 31, 2017.

Figure 2: Insurance Density 2008-2014
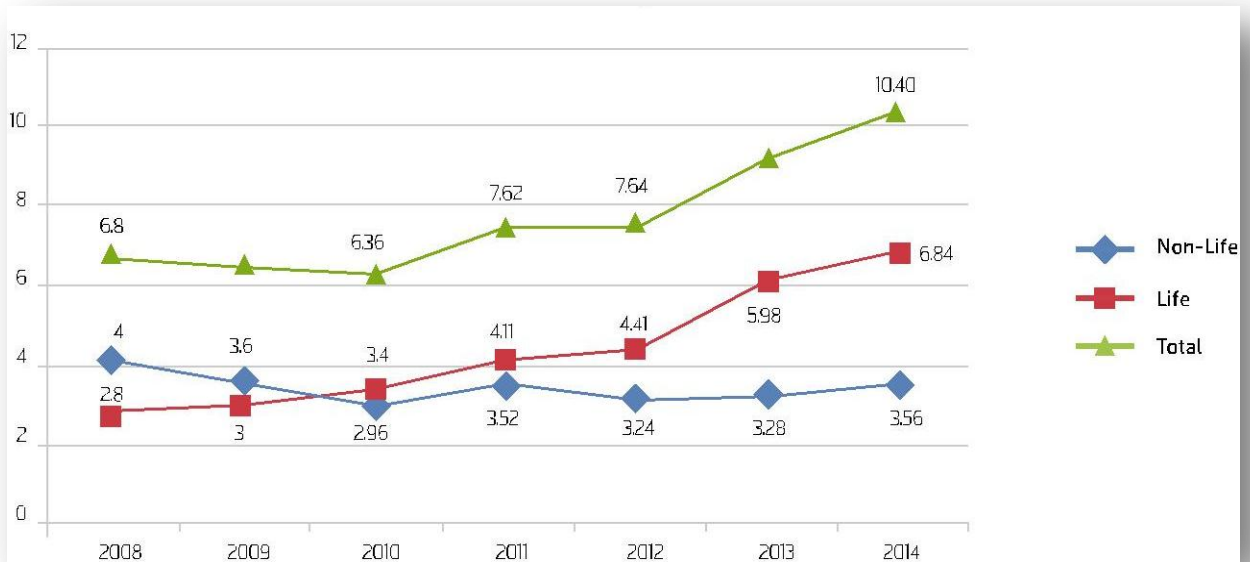
Figure 3: Premium Underwritten 2008-2014
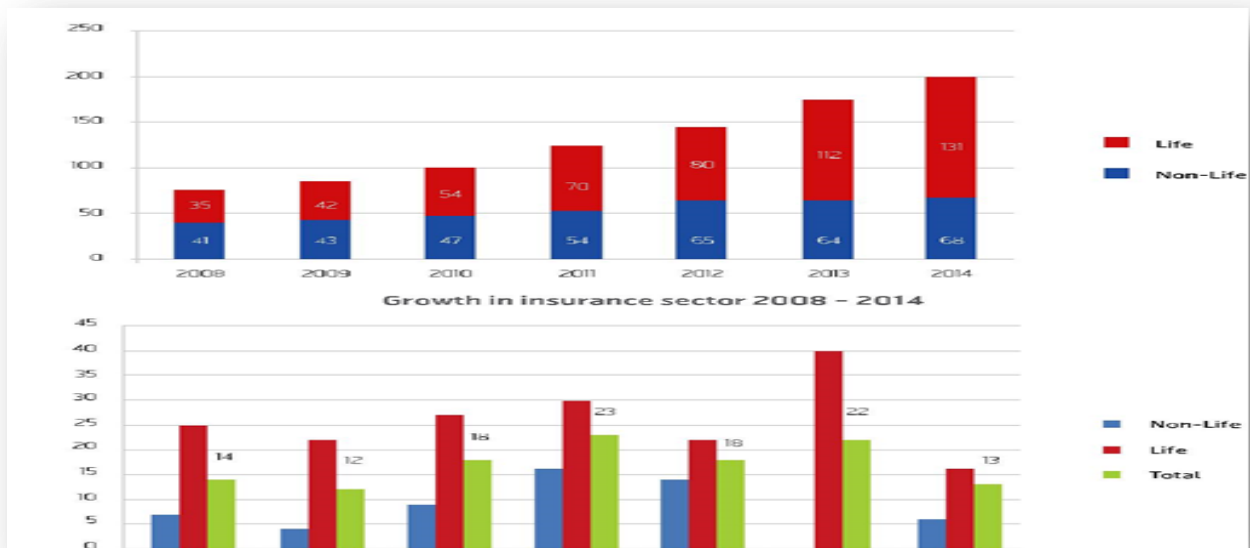
At present, there are 38 life and non-life insurers operating in the market, including 2 general

takaful operators and one state-owned insurer. In 2014, the sector grew by 6%, whereas the total premium of non-life insurance industry stands at Rs. 68.4 billion, excluding reinsurance. In 2014, the life insurance market grew by 16%, whereas the total premium stood at Rs. 131 billion. The SECP has also allowed two life insurers to transact window Takaful business during the period under review, through which conventional life insurers are able to underwrite family Takaful products. (IAP, 2014).

Chapter 3

REVIEW OF LITERATURE

The insurance sector's performance in footings of profitability and its effect on financial development is a widely researched area. The aim of this chapter is to review the literature in the area of determinants of insurance profitability and impact of insurance industry on financial development sector of Pakistan. Section 3.1 reviews theoretical literature, section 3.2 provides empirical literature review in association with summary of literature review and conceptual framework of the study, while section 3.3 describes research questions as well as section 3.4 centers on the formulation of hypothesis

3.1 Theoretical Framework

Since there are no general theories which are associated with the determinants of insurance profitability as well as with the impact of financial development. Therefore, here in this chapter we describe some theories which are nearer to the concept of insurance profitability and its determinants as well as with the financial impact of insurance companies on financial development sector in Pakistan.

3.1.1 Modern Portfolio Theory

Modern portfolio theory (MPT) was proposed by Harry Markowitz in 1952, basically the theory suggests that investors can increase the performance of their portfolios by apportioning their investments into various types of financial securities and industrial sectors. This theory helps in choosing the most efficient investments by scrutinizing various possible portfolios of the available securities, MPT emphasize to investors that how to shrink their risk while doing investment in some sector. It is based on expected returns "mean and variance "of the various

portfolios. MPT model capitalize on expected portfolio returns for a given amount of portfolio risk or otherwise minimize returns by sensibly picking the proportions of different assets.

Now, since insurance industry are also investments by themselves its standard practice for them to invest in a diversified portfolio to minimize risk and maximize return of the various investment options. As the investor always maximizes its capital, therefore while taking decision about future which is not known with certainty, it must be projected returns which are discounted. Through mounting up several assets whose returns are not perfectly positively correlated. Modern portfolio theory emphasizes maximizing returns while minimizing risks, while acknowledging the existence of systematic and non-systematic risks. Therefore, these concepts are usually referred to when debating financial investments and insurance being affected by risks and returns as well.

Diversification is the solution to cater concentration risk. Over-reliance on alike assets' profitability and anticipations that contingent liabilities do not become tangible obligations are risks that can wipe-out risk portfolios in an instant. Non-systematic risks and alphas are the main items that give underwriting skills significance. Non-systematic risks can be eliminated by widening the exposure of insurance over more assureds. In doing so, diversification is attained.

3.1.2 Arbitrage Pricing Theory

Stephen Ross proposed Arbitrage Pricing Theory (APT) in 1976. APT advocate that though many macro forces can influence the returns of any individual firm, these particular effects tend to cancel out in large and well diversified portfolio. This is the code of diversification and it has an influence in the field of insurance. An insurance company has no way of knowing whether any particular individual will become sick or will be stuck in an accident, but the company is able to precisely forecast its losses on a large group of such risk. However, an insurance

company is not completely free of risk simply because it insures a large number of individuals. Natural disaster or changes in health care can have major influences on insurance losses by simultaneously affecting many claimants. Cummins (1994) suggest that insurance companies are corporations and insurance policies can be interpreted as specific types of financial instrument or contingent claim thus it is logical to put on financial models to insurance pricing. The models are designed to estimate the insurance prices that would relate in a competitive market. Charging a price at least as high as the competitive price (reservation price) increases the market value of the company. Quoting a lower price would diminish the company's market value. Thus financial models and financial prices are among the key items of information that underwriters should have at their will when making financial decisions about rate schedules, reinsurance contract terms, etc.

Black Swan Theory

The concept of Black Swan events was disseminated by Nassim Nicholas Taleb in 2008. It explains that the world is brutally affected by events that are rare and hard to forecast, events of low probability but high incentive.

This insurance process facilitate capitalists to make profit maximizing coherent production and investment selections even in the short run when dealing with risky known processes. It is just that the short run does not deliver a sufficiently large sample; Black Swans seem to compute the probabilistic risk of encountering a Black Swan. In the long run, those businesspersons who in their price marginal cost intentions include these insurance costs as if they knew the objective probabilities implied in Knight's invariable reality will make the well-organized decision and will, earn profit. The utmost risks are not ever the ones you can realize and measure, but the ones you can't see and therefore can never quantify. The ones that seem so far away outer the

boundary of normal probability that you can't visualizing they could happen in your lifetime even though, of course, they do occur, more frequently than you overhaul to realize. What may black swan to civilization at large may have narrow insurance impression; likewise, some actions that cause disastrous losses may not appear dangerous from other viewpoints. No one desires to un-risk, in the logic that they want to really take some money off the counter. It's all about valuing and calculating risk, and of course evading against it. Call for safety against so-called tail risks is growing as investors respond to Black Swan events. An shareholder or a firm does not have efficient enough in trying to forecast what is going to materialize and which hedging strategy is going to execute better what they prerequisite to do is accumulate economical protection. Insurance companies bid this low-priced shelter where by large losses can be hedged against by reimbursing small amounts acknowledged as premiums. By having such products, insurance companies collect premiums in a pool, since the occurrence of these events is insignificant, they may end up giving none thus better financial performance.

3.2 Empirical Evidence on Profitability & Financial Development (Literature)

Insurance business all over the domain has been working to achieve one goal that is work for profitability. Therefore, all the policies, strategies, methodologies and patterns that banks embrace are to attain this one objective. The insurance industry, exclusive of profitability has other economic and social goals too but the one noteworthy to their sustainability and existence. Since 1980's, the insurance business has grown around the world and a numerous insurance companies have opened their divisions in different countries. Considerable work has been printed on insurance profitability encompassing life insurance companies, non-life insurance companies, and firm's explicit variables things on its profitability in many countries of the world.

The difference of profit among insurance companies over the years in a given country would result to suggest that core factors or company specific factors, corporate governance and macroeconomic aspects play a vital role in inducing their profitability. It is therefore authoritative to identify what are these factors as it can support insurance companies to take action on what will surge their profitability and investors to estimate the profitability of insurance companies in Pakistan. To do so, it is superior to see what factors were reflected in previous times by different researchers in different countries.

Rudolf (2001) inspected the key factors and modern developments determining profitability in the major non-life insurance markets. The study focused on the non-life insurance markets of the set of seven countries (G7) primarily for the period 1996 to 2000. To examine the profitability, investment outcomes and underwriting results were equated between countries and across lines of business and to evaluate the drivers of profitability, return on equity were decomposed into its major segments namely underwriting results and investment income. The results directed that only Germany and Japan did not have negative underwriting outcomes and return on equity was high in UK, reasonable in Canada and US, and low in France and Germany. The study establishes that underwriting end result and investment yield are negatively correlated. The research suggested that due to ambiguous prospects for investment results, the insurers must focus on underwriting results to achieve bigger profitability.

Shiu (2004) studied the factors of the performance of the UK general insurance companies, over the period 1986–1999, by using three key elements: investment yield, percentage change in stockholders' funds and returns on stockholders' funds. Based on a panel data set, the author empirically tested 12 explanatory variables and disclosed that the performance of insurers have a

positive correlation with the interest rate, return on equity, solvency margin and liquidity, and a negative correlation with inflation and reinsurance dependence.

Greene (2004) argued that the profitability of insurance is normally expressed in net premium earned, profitability from underwriting activities, annual turnover, return on investment, return on equity. These measures could be classified as profit performance measures and investment performance measures.

Hoyt and Powell (2006) examined the financial performance of medical liability insurer by via two suitable measures, namely, the economic combined ratio and the return on equity. The period for the study was from 1996 to 2004. Based on ECR, medical liability insurers, as a set reported low level profitability in only three years (1996, 1997 and 2004).

On the other hand, these insurers persistent losses in six consecutive years from 1998 to 2003. The average profit ratio (return on net premiums earned) during the period 1996 to 2004 was negative thirteen per cent. The study establishes that there was no sign that medical liability insurers had been earning too much returns or that they were over-capitalized. The research resolved that there was no evidence that medical malpractice insurance was overpriced.

Holzheu (2006), in his research paper, measured the underwriting profitability of insurance markets. The study deals economic mutual ratio as substitute key performance indicator as an alternative of conventionally printed combined ratio. It redirects underwriting profitability more precisely. The study concentrated on the underwriting profitability of six main non-life markets, the US, the UK, Germany, Japan, France and Canada from 1994 to 2004. The outcomes indicated the depiction for the business year results for Japan, Canada, France, Germany and the UK were largely reliable with the US results. The results for the years 1994 to 1997 and 2002 to 2004 were gainful, though often only moderately. The period from 1998 to 2001 unveiled dismal

underwriting outcomes. Significant enhancements in underwriting results from 2001 to 2003 restored profitability to the level of the 1994 to 1997 period. The study supplementary pointed out that the ten year average underwriting margins before taxes was positive in all countries implying a positive impact to profits from the insurance events. However, the input was only around one- two per cent in the US and Japan, two-three per cent, France, five per cent in Canada and the UK, and six per cent in Germany. The study establishes that these positive outcomes were essential but not an enough condition for producing shareholder value. Profits must also curtail tax and the insurers' capital fee. During the period 1994 to 2004, it was difficult for the industry to make its underwriting cost of capital.

Hamdan (2008) examined causes of insurance company's profitability in UAE. The study incorporated secondary data for the period of 2004-2007. The study exposed that there is no connection between profitability and age of the company and there is meaningfully positive relationship between profitability and size & volume of capital. End result also depicts that leverage & loss ratio significantly and contrary related to profitability.

From the study carried by Swiss (2008) profits were calculated first by underwriting enactment (losses and expenses, which are overstated by product pricing, risk selection, claims management, and marketing and administrative expenses, and second, by investment performance, which was a utility of asset allocation and asset management as well as asset leverage. The first part of the decomposition revealed that an insurer's ROE is particularized by earnings after taxes grasped for each unit of net premiums i.e. profit margin and by the amount of capital reserves used to finance and sheltered the risk exposure of each premium unit or solvency.

(Malik, 2011) observed the causes of Pakistan's insurance firms' profitability calculated by Return on asset. The study used secondary data for the period of 2005-2009 and the sample consists of 35 insurance firms of Pakistan. The variables established in the study are age, size, leverage and loss ratio. The multiple regression model is used to identify the relationship between the profitability of insurance companies and age of company, leverage ratio, loss ratio, company size and volume of capital. Descriptive statistics and multiple regression analysis were executed to define the profitability among Pakistani insurance firms. Result exposed that there is no association between profitability and age of the company and there is meaningfully positive relationship between profitability and size. Outcome also showed that volume of capital was significantly and positively related to profitability. In contrast to the analysis suggested that a inverse and significant relationship between leverage and loss ratio as independent variables and profitability.

Kozak (2011) studied factors of profitability of non-life insurance companies in Poland during amalgamation with the European financial system for the period of 2002– 2009. The results point out that the reduction in the share of motor insurance in the portfolio, with simultaneous increase of other types of insurance has a positive effect on profitability and cost-efficiency of insurance entity. However, offering too broad range of classes of insurance negatively sways its profitability and cost efficiency. Companies expand profitability and cost efficiency with an upsurge of their gross premiums and lessening of total operating expenses. Additionally increases of the GDP growth and the market share of foreign owned firms positively influence profitability of non-life insurance companies throughout the integration period.

Ikonic et al. (2011) investigated the profitability of the Serbian insurance firms by putting on the IMF CARMEL methodology. In which defining four factors related to the capital tolerability of

insurers, the authors highlight that capital adequacy is very integral for a company, as it may produce a good level of profitability. The analysis specified that the Serbian insurance market falls into the class of developed markets and that there are good outlooks of evolution.

Curak et al. (2012) tested the determinants of the profitability of the Croatian composite insurers' between 2004 and 2009. The determinants of profitability, selected as explanatory variables comprise both internal reasons specific to insurance companies and external dynamics specific to the economic environment. By using panel data technique, the authors disclosed that company size, underwriting risk, inflation and return on equity have a noteworthy impact on insurers' profitability. The final results directed that the Croatian insurance market has a low level of development, but it is very dynamic.

Yuvaraj and Abate (2013) inspected the internal factors disturbing profitability of insurance companies as explained by return on assets. The sample in that study encompassing nine of the listed insurance firms for years (2003- 2011). The econometric model to identify and measure the determinants of profitability. Specifically, multiple regression analysis is adopted to measure the effect of determinants on profitability. The use of multiple regressions considers the simultaneous relationships amongst the multiple numbers of independent and dependant variables found across the regression model, therefore suited to the nature of the study The outcomes of regression analysis shown that leverage, size, volume of capital, growth and liquidity were the most important determinant of performance of life insurance industry whereas return on asset has statistically insignificant connection with, age and tangibility. As the findings depicted that liquidity did have negative impact on profitability and it provided further implication on the effecient risk management practices in the companies.

Daniel and Tilahun (2013) in their paper assessed factors of insurance companies' performance in Ethiopia from 2005 to 2010. The outcomes discovered that firm size, leverage, loss ratio and tangibility of assets were statistically significant to clarify enactment of insurance companies in Ethiopia. The result of the study also exhibited that insurers' size, leverage and tangibility of assets were positively related to insurance firm performance, while loss ratio that is return on asset was negatively related to performance. Firm age, liquidity and growth in written premium have no a statistical significant connection with performance of insurers.

Anna-Maria and Ghiorghe (2014) conducted a study revealing the determinants of financial performance in the Romanian insurance market, from 2008 to 2012. The authors investigated the financial performance of insurance companies at micro and macroeconomic level, resulted both by internal factors represented by specific features of the company, and external issues regarding connected societies and macroeconomic environment by applying specific panel data techniques. The outcomes attained the determinants of the financial performance in the Romanian insurance market were the financial leverage, company size, growth of gross written premiums, underwriting risk, risk retention ratio and solvency margin.

Pervan (2014) explored how insurance companies in Macedonia is efficient and according to the conclusions of panel analysis concerning the determinants of profitability, it was discovered that expense ratio, claim ratio, Size of the insurer, economic growth (GDP), and inflation have statistically significant impact on insurers' performance. Expense and also Claims ratios (CR) had negative and statistically significant power on insurers' profitability while size has a positive effect on the insurers' profitability. GDP growth positively affects insurers profitability i.e. growth of overall economic activity boost demand for insurers services and circuitously result in greater insurers income while Inflation on profitability is statistically significant and negative,

suggesting that greater levels of inflation surge higher interest rates and lower bond values which results in reduce portfolio returns.

Lee (2014) explored the association between insurance specific factors and macroeconomics on profitability in Taiwanese property-liability insurance industry using the panel data from 1999 to 2009. Using operating ratio and return on assets for the two types of profitability gauges to quantify insurers 'profitability. The outcomes exhibited that underwriting risk, reinsurance usage, input cost, return on investment and financial holding have significant impact on profitability in both operating ratio and return on asset equation. The insurance subsidiaries of financial holding group likened with other insurance companies, gaining lower profitability. Moreover, economic growth rate had significant power on profitability in operating ratio model but insignificant influence on profitability in return on asset.

Literature that is linked to insurance companies power on financial development sector, the basic paper well-thought-out as "insurance industry development and economic growth in Nigeria" (Oke, Micheal Ojo, 2012), in which the researcher had taken data from 1985 − 2009 for Nigeria. He used for this study Marijuana et al model to explore influence of insurance companies of Nigeria on economic growth. The researcher had taken gross domestic product as dependent variable while on the other hand independent variables are, number of Insurance companies, premium of life insurance, premium of non- life insurance, total investment of insurance companies with inflation as a control variable. The fallouts displayed that about 87% of the variations are explained by the independent variables. Remaining 13% are further elaborated by the stochastic variables. The results were compare with most of the previous studies (Beenstock et al, 1988; Brown and Kim, 1993; Zhuo,1998; Holsboer, 1999 and Webb et al, 2002).

3.2.1 Summary of Literature Review (Profitability and Financial Development)

A lot of empirical works has been done regarding determinants of profitability. Review of the literature showed that the researches on the determinants of profitability had been comprehensively studied in developed countries around the world and in some emerging countries like Ethopia, India and Nigeria. Besides, In Pakistan most of the researches focused on banks and other non-financial sectors rather than insurance companies.

Different scholars using empirical investigation on the determinants of profitability are resulting in dissimilar conclusions. For instance, an empirical study by Daniel &Tilahun (2013) indicated that positive and significant relationship between size, tangibility and leverage with profitability; however, loss ratio is statistically significant and negatively related with ROA. The result also revealed that there is negative relationship between age and profitability but statistically insignificant. On the other hand, a study of Ahmed (2008) examined the determinants of insurance companies profitability in UAE indicated that that there is no relationship between profitability and age of the company and there is significantly positive relationship between profitability and size & volume of capital. Result also shows that Leverage ratio & loss ratio significantly and opposite related to profitability. Khan and Amjad (2013) revealed that leverage, size, earnings volatility and age of the firm are significant determinants of profitability while growth opportunities and liquidity are not significant determinants of profitability. This initiate that determinants of profitability are issue that requires further investigation. Empirical evidences regarding determinants of insurance companies' profitability (Yuvaraj and Abate 2013) focused only on internal factors such as age, size, leverage, growth, volume of capital, tangibility of assets and liquidity. However this study was focused on overall factors like insurance specific variables, corporate governance and macroeconomics variables consisting inflation and growth

rate of GDP because these variables exert strong impact on insurance companies' profitability based on the selected previous empirical works.

The present study tries to fill the gap by estimating the performance of insurance industries by considering the insurance specific variables, governance variables and macroeconomic variables. The performance of sub-categories that are life insurance and non-life insurance companies are investigated. The novel contribution of this study is to examine the impact of insurance industry the financial development of Pakistan. Based upon the above theoretical and empirical literature review the following conceptual framework is developed and hypotheses are formulated.

3.3 Conceptual Framework and Hypothesis Formulation

Different empirical evidences suggested that profitability of financial institutions affected by internal and external factors. This study used both internal and external determinants of insurance's profitability includes leverage, liquidity, tangibility, premium growth, age & risk along with corporate governance and macroeconomic variables like growth rate of GDP and inflation. The study is identified how these variables determine the profitability of insurance company in Pakistan as well as the impact of overall insurance industry on financial development sector of Pakistan.

3.3.1 Conceptual Framework (Diagram)

The conceptual framework for the research study is shown from below two diagrams. Diagram 3.1 shows the determinants of insurance companies which effects profitability, while diagram, 3.2 expresses the impact of insurance companies on financial development sector of Pakistan.

Figure: 4 Conceptual Framework (Diagram)
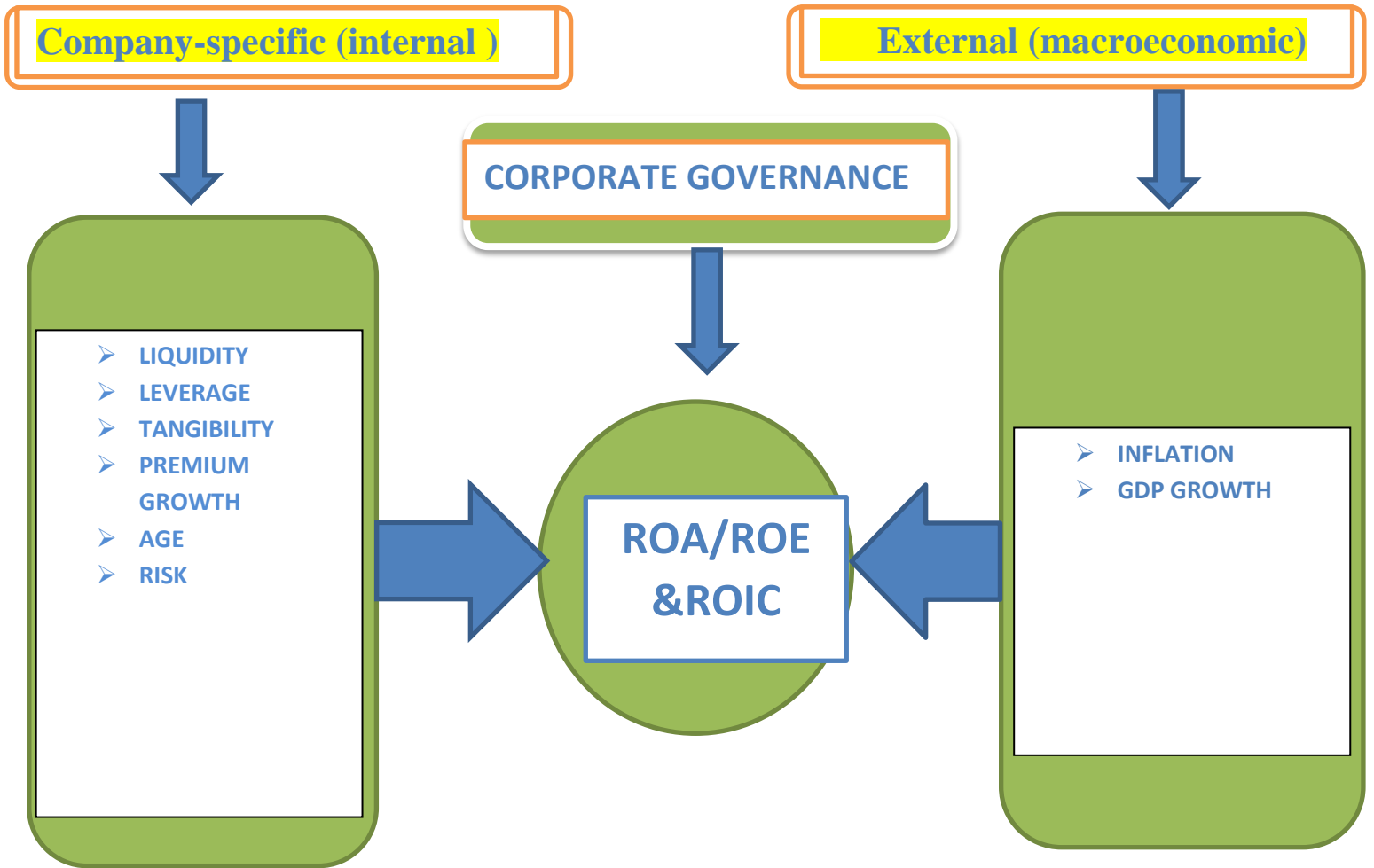
(Source: Author's own work. Graph 3.1 & 3.2)
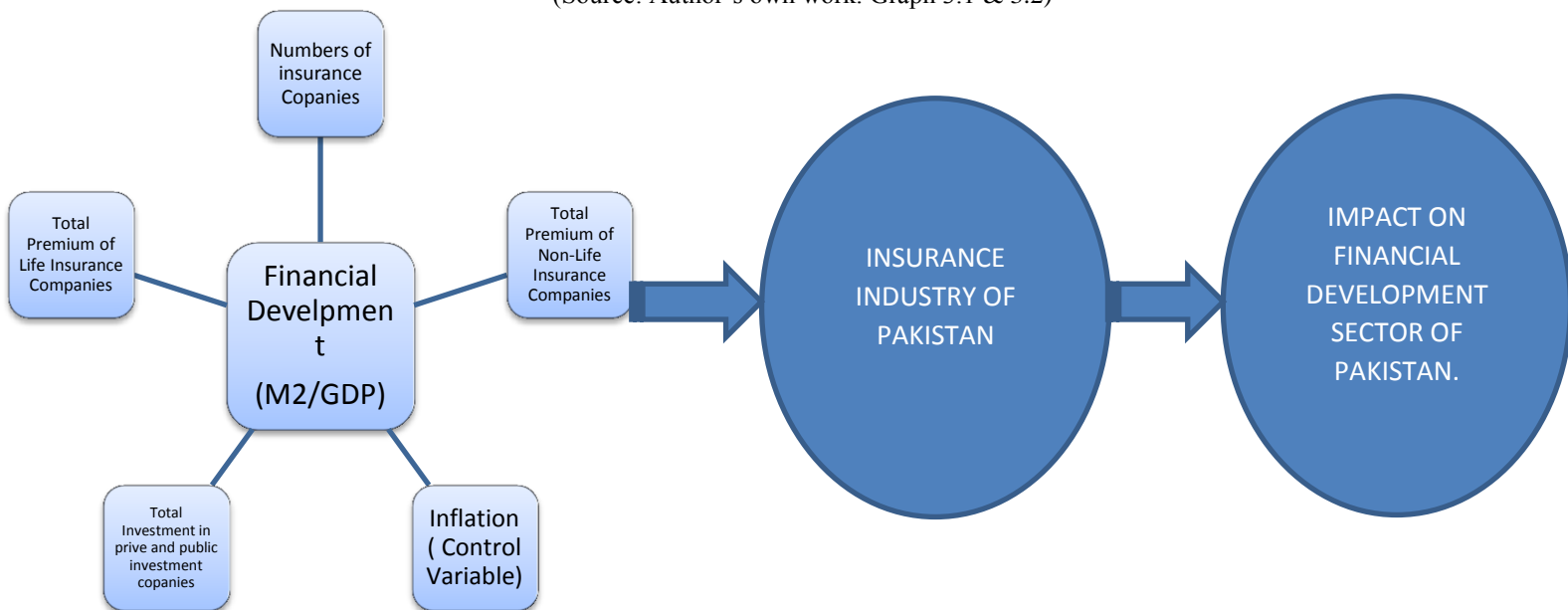
3.3.2 Hypothesis Formulation:

To examine the impact of characteristics on the performance of insurance companies and to investigate effect of performance of insurance companies on financial development following hypotheses are formulated on the basis of which hypothesis are developed. The researcher has categorized the following hypothesis.

Hypothesis-1

H_0: There is no significant effect of insurance specific , corporate governance and macroeconomic variables (GDP growth and Inflation) on profitability of insurance companies in Pakistan.

H_1: There is significant effect of insurance specific, corporate governance and macroeconomic variables (GDP growth and Inflation) on profitability of insurance companies in Pakistan.

Hypothesis-2

H_0: There is no significant impact of insurance company's on financial development sector of Pakistan.

H_1: There is significant impact of insurance company's on financial development sector of Pakistan.

Chapter 4

DATA AND METHODOLOGY

This chapter specific data collection, sample that is taken for research, the sources of data collection, explanation and particulars of variables, econometric model specification and estimation techniques. The chapter is arranged as follows. Section 4.1 describe methodological framework, empirical specification of the models. Estimation technique is discussed in Section 4.2. Section 4.3 presents data sample, data sources and overviews particulars of variables and explanation of variables. Finally econometric methodology is provided in section 4.4.

4.1 Methodological Framework

The main objective of this study is to investigate the determinants of insurance companies as well as impact of insurance companies on financial development. Therefore, this study has set of empirical models that are based on theoretical background and set of econometric techniques to estimate these models.

4.1.1 Methodology for Determinants of Insurance Profitability

Various prominent research has been done to investigate the determinants of insurance companies profitability (Malik, 2011; Sambasivam & Ayele, 2013; Sumaira & Amjad, 2013). These studies provide a different array of models in which various variables are considered as important determinants of profitability. Current study analyses and extends the model of Sumaira & Amjad (2013) to investigate the determinants of profitability.

The general specification of the profitability model (4.1) is written as:

$$FPerf_{it} = \alpha_1 + \sum_{i}^{n}(a_n Firm\ Specific)_{it} + (Corporate\ Governance)_{it} + \sum_{i}^{n}(a_n Macroeconomic) + \in_{it}$$

$$_{it}$$

Where $FPerf_{it}$ is (Financial performance), insurance specific variables are leverage, premium growth, liquidity, age, risk and tangibility and corporate governance, while macroeconomics variables consists inflation and GDP growth. However, this is to be noted that theoretical literature gives more attention to the association between profitability and leverage, liquidity and tangibility etc. For example, (Ahmed et al., 2011; Malik, 2011; Sumaira & Amjad, 2013).

Different profitability measures; return on assets (ROA), return on equity (ROE) and return on invested capital (ROIC) are used to capture probability of insurance companies in present study. In addition to leverage, liquidity, tangibility, other variables are also incorporated in the profitability model such as age, risk, corporate governance; inflation and GDP growth are independent variables.

Therefore the empirical specification of the model takes the following form:

$$FPerf_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} + \alpha_7 RISK_{it}$$
$$+ \alpha_8 CG_{it} + \alpha_9 INF_t + \alpha_{10} GDPG_t + \in_{it} \qquad (4.2)$$

Where $FPerf_{it}$ = ROA, ROE and ROIC indicating financial performance of thirty five Insurance companies at time t which is from 2004 -2014. The alphas (α's) are parameters to be estimated and ε is random error term. The Liq_{it} is liquidity, Tan_{it} is Tangibility, Pgr_{it} is Premium growth, Age_{it} of the company, $Risk_{it}$, CG_{it}, corporate governance variables, INF_{it} is inflation rate and

$GDPG_{it}$ is growth rate of GDP[3]. The "i" is the number of insurance companies and "t" is time period.

4.1.2 Methodology for Impact of Insurance Industry on Financial Development

Current study also investigates impact of insurance industry on financial development sector of Pakistan. M2/GDP is used for financial sector development[4] while numbers of insurance companies, premium of life insurance companies, premium of non-life insurance companies, total investment in insurance companies and inflation are taken as independent variables.

To investigate impact of insurance industry on financial development sector, this study modifies the model of Marijuana et al.(2009).

$$FD_t = \alpha_1 + \sum_i^n (a_n Firm\ Specific)_t + \sum_i^n (a_n Macroeconomic) + \in_t$$

Which can be written in more clear form as below?

$$M2/GDP_t = \alpha_1 + \alpha_2 PLI_t + \alpha_3 PNLI_t + \alpha_4 TII_t + \alpha_5 INF_t + \in_t \quad (4.3)$$

Where,

$M2/GDP_t =$ Financial Development Proxy $\qquad PLI_t=$ Premium of Life insurance companies

$\qquad PNLI_t=$ Premium of Non- Life insurance companies

$TII_t \quad =$ Total Investment in Insurance companies $\qquad INF_t =$ Inflation (Control Variable)

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[3] Theoretical justification and construction of these variables are discussed in Data and Sample section.
[4] There are several other proxies to measure financial development; this study uses financial deepening as measure of financial development.

- M2/GDP: Financial Performance is the monetary benefit achieved from a business activity exceeding expenditures to sustain the activity. M2/GDP will be used to investigate impact of insurance business on financial development sector.

- Number of Insurance Companies (NIC): Numbers of insurance companies listed on security and exchange commission of Pakistan (SECP).

- Premium of Life Insurance (PLI): Premium is revenue which is collected from the clients. This will be taken from Profit and Loss account of the life insurance company.

- Premium of Non-Life Insurance (PNL): Premium is revenue which is collected from the clients. This will be taken from Profit and Loss account of the Non-life insurance company.

- Total insurance Investment (TII): The investment of insurance companies in Real sector or in financial sector. This will be taken from the Balance sheet of the insurance companies or from company's website.

- Inflation (INF): A persistent change in prices or we can say general increase in prices are called inflation. This study will use inflation rate as a measure of inflation. (Been stock et al, 1988), (Brown and Kim, 1993), (Zho, 1998), (Holsboer , 1999).

4.2 Empirical Model Specification and Estimation Technique

4.2.1 Empirical Model Specifications

Firstly, performance as return on assets (ROA), insurance specific variables, corporate governance and macroeconomic variable are regressed separately to display the impact of each variable on ROA. The reason for estimating three regressions equations is to check how the impact of insurance company's specific variables on profitability changes by including corporate governance and

Macroeconomic variables. Various models are structured below:

1. $ROA_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} + \epsilon_{it}$

$$(4.4)$$

2. $ROA_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} +$

$\alpha_7 RISK_{it} + CG_{it} + \epsilon_{it}$ $\qquad$ (4.5)

1. $ROA_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} +$

$\alpha_7 RISK_{it} + \alpha_8 CG_{it} + \alpha_9 INF_t + \alpha_{10} GDPG_t + \epsilon_{it}$ … … … … … … … .. (4.6)

Secondly, performance proxy as return on equity (ROE) is estimated for variables independently, first with Insurance Companies specific variables to see impact on ROE. Then estimated insurance company's specific variables, corporate governance as an index with ROE to check its impact, and in the end regressed the data of macroeconomic variables to see what impact they have on ROE.

1. $ROE_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} +$

$RISK_{it} + \epsilon_{it}$ $\qquad$ (4.7)

2. $ROE_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} +$

$\alpha_7 RISK_{it} + CG_{it} + \epsilon_{it}$ $\qquad$ (4.8)

3. $ROE_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} +$

$\alpha_7 RISK_{it} + \alpha_8 CG_{it} + \alpha_9 INF_t + \alpha_{10} GDPG_t + \epsilon_{it}$ $\qquad$ (4.9)

Thirdly, for Return on Invested Capital (ROIC), Insurance companies specific, corporate governance and macroeconomic variables are estimated individually to display impact of each on ROIC., in equation 13 all variables impact on life-insurance companies, equation 14 provides

determinants of Non-Life insurance companies while in equation 15, impact of insurance business is analyzed on financial development sector of Pakistan.

1. $ROIC_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} +$

   $RISK_{it} + \in_{it}$ (4.10)

2. $ROIC_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} +$

   $\alpha_7 RISK_{it} + CG_{it} + \in_{it}$ (4.11)

3. $ROIC_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} +$

   $\alpha_7 RISK_{it} + \alpha_8 CG_{it} + \alpha_9 INF_t + \alpha_{10} GDPG_t + \in_{it}$ (4.12)

Determinants of Life insurance Companies Profitability

$ROA_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} + \alpha_7 RISK_{it} +$

$\alpha_8 CG_{it} + \alpha_9 INF_t + \alpha_{10} GDP_t + \in_{it}$ (4.13)

Determinants of Non-Life Insurance Companies Profitability

2. $ROA_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} +$

   $\alpha_7 RISK_{it} + \alpha_8 CG_{it} + \alpha_9 INF_t + \alpha_{10} GDPG_t + \in_{it}$ (4.14)

Life and Non-Life Insurance Companies Impact On Financial Development

3. $M2/GDP_t = \alpha_1 + \alpha_2 PLI_t + \alpha_3 PNLI_t + \alpha_4 TII_t + \alpha_5 INF_t + \in_{it}$ (4.15)

4.2.2 Estimation Technique

This study considers nine explanatory variables which vary across the group (cross sectional). For this form of analysis panel data methodology is used. Panel data propose more effective information by joining time series and cross sectional observations, panel data also gives more degree of freedom, extra variability and less multicollinearity between variables. Panel data gives

more comprehensive empirical results and analysis as compare to time series and cross sectional data. Therefore for profitability determinants model panel data estimation technique is used. In this study Random and Fixed effect model are used. The selection of appropriate method enables the researcher to analyze their objective tentatively and increased the validity and reliability of the results.

To see impact of insurance industry impact on financial development sector quarterly time series data has been used.

4.3 Data and Sample

4.3.1 Population

The population is all insurance companies consisting life, non-life and Takaful i.e. number of 38 insurance companies which are listed at Securities and Exchange Commission of Pakistan (SECP).

4.3.2 Sample

The study uses data of thirty five insurance companies for eleven years from 2004-2014 for analysis. For impact of Insurance business on financial development sector, quarterly time series data has been used. The selection criteria of these insurance for present study are: continuous listing during the period of analysis, availability of data and actively trading. The two companies i.e. Sindh insurance company and Alinaz insurance company are recently registered with Security exchange commission of Pakistan in 2014 and 2015. The one other is working as takaful which is not been taken in this study.

4.3.3 Data collection

In order to analyze research objective, this research uses secondary data on yearly basis. Secondary data includes annuals reports, published material, public data and information from other sources. According to (Cooper, Schindler, & Sun, 2006) secondary data is more useful in quantitative technique to evaluate reports, records, government opinion and government documents etc. The data is collected from Insurance Association of Pakistan (IAP), annual report of insurance companies, from the company's websites, WDI as well as some unstructured questions from company's management for corporate governance.

4.3.4 Variables Construction and Explanation for Profitability Model

Data regarding insurance specific variables are taken from annual statement of each insurance company. The time period covered under this study is 2004 to 2014. Due to missing values there is unbalance panel data.

4.3.4.1 Measuring Profitability

➢ **Return on Assets (ROA)**

Return on assets abbreviate as ROA which shows the revenue received per rupee of the Insurance company assets and it also directs the ability on the part of administration that how proficiently the team can develop investments that can lead to profit generation. For each individual insurance company, Return on Asset (ROA) is dependent upon the insurance company's policy decisions, macro-economic dynamics and government regulatory requirements. Many business people consider it as a preeminent proxy to profitability as it shows how much of income has been produced from the assets. Return on assets equals the ratio of net income to total assets. Upper value of ROA shows the efficiency of the firms, (Wen, 2010).

Return on Asset (ROA) = Net Profit before Tax/Total Assets

This Proxy is reported as a ROA in this study.

> ### Return on Equity (ROE)

Return on equity (ROE), tells how sound an insurance company's management is spending its shareholders funds. ROE measures that the shareholders guess in response for their speculation. The greater the ratio, the higher the income generation by the company and better will be the profits. ROE is explained as the proportion of Net Income after Taxes divided by Total Equity.

Return on Equity = Net Profit before Tax/Total Equity

This Proxy is reported as a ROE in this study

> ### Return on Invested Capital (ROIC)

The return on funds or invested money in a business attempts to measure the return earned on funds invested in an investment. In practice, it is usually defined as follows:

Return on Invested Capital = Net Profit after Tax + Interest Paid / Total Assets.

This Proxy is reported as a ROE in this study.

4.3.4.2 Insurance Business - Specific Variables

The insurance company's performance indicators that have been taken in this study are varied and they indicate a few measures of the insurance companies like their asset quality their management efficiency indicators and indicators which mentions the liquidity of insurance companies. These comprise leverage, liquidity, tangibility, premium Growth, age and risk. (See table 4.2).

4.3.4.3 Corporate Governance Variables

A small portion of expenses are assigned by the insurance companies to fulfill with the instrument of corporate governance. Corporate governance is considered as a device that measures the ethics and performance of the insurance companies. This study borrowed proxy and dummy variable technique to measure corporate governance (Mande et al, 2012). The set of corporate governance variables include: board size, independent directors, managerial ownership, transparency, CEO duality following (Mande et al, 2012). Corporate governance of insurance business is estimated through dummy variables presented in Table 4.1. This is the first study to investigate impact of corporate governance variable on insurance business as per the researcher knowledge.

Table 4.1: Indicators of Corporate Governance (Mande et al, 2012)

Indicators	Measurement	Dummy Variable
Board Directors	No. of directors of the board	1 when less than median of the sample 0 when greater than median of the sample
Audit Committee independence	Audit committee members divided by Number of Director in audit committee	1 while greater than median of the sample 0 while less than median of the sample
Managerial Proprietorship	%age of shares held by executive director, divided by total no of shares	1 when percentage is less than sample median 0 when percentage is greater than sample median
Transparency	insurance companies publish its financial statements	1 when company publish financial statement and 0 otherwise
CEO Duality	If CEO is chairperson	1 when CEO is not chairperson of the board 0 when CEO is a chairperson of the board

4.3.4.4 Macro-economic Variables

This study also indicates macro-economic variables which capture the impact of macroeconomics policies on insurance companies. To captures the macro-policy environment this study uses two variables; GDPG (Growth rate) and inflation rate.

Mostly Financial institutions faces risk of inflation rate and thus profitability is squeezed due to variations in inflation rates, especially on their stationary deposit against their premium. The GDP growth rate, Inflation rate, unemployment, nominal interest rates as well as others macroeconomic variables that affect the performances of insurance companies. For instance, the trend of GDP affects the demand for insurance company's asset. Inflation is considered to have a negative impact on profitability. This study have taken only two macroeconomic variable just to grasp whether the impact of factors that are exogenous to the insurance companies do have any influence on the profitability or the profitability of the insurance companies is determined endogenously and by taking control of internal factors profitability can be organized.

Inflation: When the prices of goods and services rise over time. Inflation certainly plays role in insurance and has adversative impact on many aspects of insurance operations, such as claims, expenses and technical provisions (Daykin, Pentikäinen & Pesonen, 1994)

$$\text{Inflation rates (IR)} = \ln(I_t - I_{t-1})\ln(/I_{t-1}).$$

GDP Growth Rate: This is macroeconomic variable and it is likely to have a positive impact on the insurers' financial performance such as economic growth develops the living standards and the levels of income, increasing the purchasing power of population. Growth rate of GDP reflects economic activity as well as level of economic development and as such affect the numerous dynamics related to the supply and demand for insurance products and services. GDP is the most

informative single indicator of progress in economic development. Poor economic conditions can worsen the quality of the finance portfolio, thereby reducing profitability. If GDP grows, the likelihood of selling insurance policies also grows and insurers are likely to benefit from that in form of higher profits (Maja, 2012) has examined that GDP growth positively affects insurers profitability i.e. growth of overall economic activity inspire demand for insurers services and ultimately result in higher.

$$\text{Economic Growth Rates (EGR)} = \ln (GDP\ t - GDP\ t - 1)/\ln(GDP\ t - 1),$$

Here GDP represents real gross domestic product.

Table 4.2: Summary of Variables and Measurement (Profitability)

Variables	Description/ Proxy	Expected Effect	Research Support	Data Source
Leverage (LEV)	Total Liabilities/ Total Assets	Negative	(Malik, 2011; Sumaira & Amjad, 2013)	Annuals Reports
Liquidity (LIQ)	Current Assets/ Current liabilities	Positive / Negative	(Sambasivam & Ayele, 2013; Sumaira & Amjad, 2013)	Annuals Reports
Tangibility (TAN)	Fixed Assets / Total Assets	Positive / Negative	(Sambasivam & Ayele, 2013; Sarkar)	Annuals Reports
Premium Growth (PGR)	Percentage change in premiums	Positive / Negative	(Derbali, 2014; Suheyli, 2015)	Annuals Reports
Age	Nos. of years since from establishment	Positive	(Derbali, 2014; Malik, 2011)	Annuals Reports
Risk	Net assets to Total worth	Positive / Negative	(Boadi et al., 2013; Sumaira & Amjad, 2013)	Annuals Reports
Corporate Governance (CG).	Dummy Variable CGI (Corporate Governance index) is created for Pakistan, See table 4.1)	Positive/ Negative (Expected)	New study.	From Insurance Co; (New Variable CGI – Dummy variable introduced)

Growth in GDP (GDPG)	(GDPG) = ln(GDP t−GDP t − 1)/ln(GDP t − 1)	Positive	(Doumpos, Gaganis, & Pasiouras, 2012; Suheyli, 2015)	WDI
Inflation (INF)	(IR) = ln(I $_t$−I $_t$− 1)/ln(I $_t$ − 1),	Negative	(Suheyli, 2015)	WDI

4.3.5 Financial Sector Development Variables

Table 4.3: Summary of Variables and Measurement for Financial Development

Variables	Description/ Proxy	Expected Effect	Research Support	Data Source
Nos. Of Insurance companies	Nos. of Insurance companies listed on SECP	Positive	(Beenstock et al, 1988), (Brown and Kim, 1993),	SECP
Premium of Life Insurance companies	Net Premium Income of all Life Insurance companies	Positive / Negative	(Beenstock et al, 1988), (Zho, 1998), (Holsboer , 1999).	Annuals Reports
Premium of Non- Life Insurance companies	Net Premium Income of all Non- life Insurance Companies	Positive	(Beenstock et al, 1988), (Zho, 1998), (Holsboer , 1999).	Annuals Reports
Total Investment in Insurance	Total Investment of all life and Non-life insurance companies.	Positive	(Beenstock et al, 1988), (Zho, 1998), (Holsboer , 1999).	Annuals Reports
Inflation (INF)	Yearly annual % change in Inflation rate	Negative	(Beenstock et al, 1988), (Brown and Kim, 1993),	WDI

4.4 Econometric Methodology

4.4.1 Types of Panel Models

There are various types of panel data estimation techniques like pooled OLS, Fixed effect model

and Random effect model etc.

4.4.2 The Pooled OLS

In panel methodology, one type is constant coefficients in both intercepts and slope. We just pool the data and run the OLS, there is no significant cross sectional effect and no time effect. This model sometimes called constant coefficient model.

$$\pi_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} + \alpha_7 RISK_{it} + \alpha_8 CG_{it}$$
$$+ \alpha_9 INF_t + \alpha_{10} GDP_t + \epsilon_{it}$$

4.4.3 Fixed Effect Model

Fixed effect methodology has constant slope but intercept vary across the cross sectional, over the time or both. In this type model there is no significant time effect, there is significant cross sectional effect like country effect. This model is called fixed effect model.

$$\pi_{it} = \alpha_i + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} + \alpha_7 RISK_{it} + \alpha_8 CG_{it}$$
$$+ \alpha_9 INF_t + \alpha_{10} GDP_t + \epsilon_{it}$$

The subscript i with intercept shows that the intercept vary across the cross sectional, in this study 35 insurance companies cross sectional sector of Pakistan is taken under consideration. It may be by the reason of unique features of each insurance like corporate, due to the different intercepts i introduce the dummy like as explained above in section 4.2.5.

In fixed effect model slope is constant also intercepts vary over the time. In such type model there is no significant country (group) effect. The error term of this model may be auto correlate with its time lagged effect. In this case the variables may be similar across the cross sectional (country). For the time effect for t period we introduce t-1 dummies in the equation.

$$\pi_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} + \alpha_7 RISK_{it}$$
$$+ \alpha_8 Dummy_{it} + \alpha_9 INF_t + \alpha_{10} GDP_t + \epsilon_{it}$$

One another type of fixed effect model in which slope is constant and intercept vary across the cross sectional as well as time.

$$\pi_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} + \alpha_7 RISK_{it}$$
$$+ \alpha_8 Dummy_{it} + \alpha_9 INF_t + \alpha_{10} GDP_t + \in_{it}$$

4.4.4 The Random Effect Model

According to the WH.Greene (2001) the random effect model is a regression with random constant term.

$$\pi_{it} = \alpha_1 + \alpha_2 LEV_{it} + \alpha_3 LIQ_{it} + \alpha_4 TAN_{it} + \alpha_5 PGR_{it} + \alpha_6 AGE_{it} + \alpha_7 RISK_{it} + \alpha_8 CG_{it}$$
$$+ \alpha_9 INF_{it} + \alpha_{10} GDP_{it} + \dot{\omega}it$$

Where

$\dot{\omega}it = \mathcal{E}i + Uit$

We assume α_1 is random with mean value of α_1, instead of treating $\beta\alpha_1 i$ as a fixed and intercept of each group as a

$\alpha_1 i = \alpha_1 + \mathcal{E}i$

Where

$\mathcal{E}i$ = random error with zero mean and variance $\sigma\mathcal{E}$

4.4.5 Model Estimation

Ordinary least square is used to estimate model which have constant coefficient with homogenous residuals and normally distributed. On the dependent variable there is no Group wise or other heteroskadiscity as well as OLS for fixed effect can be used (Sayrs, 1989). Error

should be homoskedastic and independent for the proper implication of OLS. These conditions are rarely fulfilled to expect the OLS (Davidson and MacKinnon, 1993).

The estimator Feasible Generalized Least Square (FGLS or EGLS) is filled with heteroskedastic model; with OLS we cannot estimate the fixed effect model with group wise heteroskadiscity. If the autocorrelation plague the error and sample size is too large then we use FGLS.

4.4.6 Fixed Effect OR Random Effect Estimators

If time series is large than cross sectional units then FEM is batter. Housman test is classical test which tells us either fixed effect is batter or random effect model. The important research question is whether there is significant correlation between regressors and the unobserved cross sectional heterogeneity. The fixed effect model is more powerful choice if there is such correlation. If there is exists such correlation then FEM is better choice. The null hypothesis of this test is that there is no correlation. If the difference between the covariance matrixes of two models is not statistical significant then correlation will statistically insignificant of the random effect with regressor.

4.4.7 Hausman Test

For the estimation of panel data FEM & REM are two important techniques. Housman test is well reputed test to choose the best model between FEM and REM. This test was given by Prof. Housman in 1998.

The Housman test of statistics tend to the chi-square (χ^2) in the above equation. This study estimates both equations to complete the Housman test then compare the both models and its statistics with chi-square (χ^2). This test provides guideline to select the model between FEM & REM.

4.4.8 Estimating Technique

Panel Data Model are used in this study and fixed effect and random effect model which based on assumption that we allow cross sectional heterogeneity not want to calculate it and assume correlation is zero

$$\text{Covariance } (X_i, \lambda_i) = 0$$

Where X change means our independent variable will not change then Cross Sectional Heterogeneity is change.

4.4.9 Insurance industry and Financial Development (Estimation)

> ## Unit Root Test

Time series literature wants researchers to check unit root for each variable before approximating any regression model. If the unit root of various series is considered to be non- stationary. Then the results of regression model will be reflected spurious. So augmented Dickey- Fuller (ADF) tests is used to check stationary properties of the data. ADF test assumes that the error track a white noise process. Therefore, an error term should be uncorrelated, and have a constant variance.

> ## Testing of Long run relationship

Cointegeration refers to the existence of long-run equilibrium relationship between two or more time series variables which are individually non-stationary at their level form Gujarati, (1995). The clue working behind cointegeration study is that although macroeconomics variables may trend up and around or down over time, the group of variable may drift together and hereafter form a long run relationship.

Various kinds of co integration techniques are available to check the existence of long run relationship among variables. Most commonly used co integration techniques are Engle- Grander (1987) two step residual- based co integration, Johansen and Juselius approach to co integration and ARDL technique.

Engle and Granger (1987) and Johanson, (1990) noted out that a linear combination of two or more non- stationary series might be stationary. If such stationary (leaner combination) exists, the non-stationary time series variables are said to be co integrated. The stationary linear combination is called the cointegeration equation and may be understood as a long run equilibrium relationship between the variables.

The limitation of the Engle and Granger approach to cointegration does not guide us about the dependence of one variable on the other. Secondly in case of more than one independent variables, there is possibility of more than one cointegerating relationships. But the Engle and Granger method to cointgeration is unable to capture this probability. Thirdly, Enger and Granger method to cointegration is a two-step procedure. Any error made in the first step will be conceded on to the next step.

The process of Johansen and Juselius (1990) contracts with these difficulties. But like the Engle-Granger process, this method also assumes that all the variables are integrated of the same order form with certainty.

Current study estimates and analyses the relationship between insurance business and financial development sector of Pakistan using Johansen co-integration estimation technique of error correction models (ECM) with data over the period of 2004 to 2014. The model is borrowed

from Marijuana et al. (2009) is taken and modified to suit the Pakistani framework. The model is stated as follows:

The model is however modified in this study by using M2/GDP as the dependent variable, presenting number of insurance companies in Pakistan (NIC) and total insurance investment (TII) into the model. Moreover, the insurance industry premium is distributed into premium of life insurance (PLI) and premium of non-life insurance (PNL). Inflation (INF) is selected as the control variable. This model can be written in following equation form.

$$M2/GDP_t = \alpha_1 + \alpha_2 PLI_t + \alpha_3 PNLI_t + \alpha_4 TII_t + \alpha_5 INF_t + \in_t$$

At the first step is to check stationarity though Augmented Dickey-Fuller (ADF) unit root test. The stationarity of the parameters is being determined if the ADF statistics is less than the Mackinnon critical value at 5%. Then remove the redundant variables if exists, After that VAR results. To check long-run relationship, this study uses Johonson Co-integration depending on the order of integration of variables. Using long run static, afterwards we do VECM to see whether there is short run relationship among the variables.

Chapter 5

EMPIRICAL RESULTS AND DISCUSSIONS

This chapter discusses the empirical results in two parts, one by examining insurance specific , corporate governance and macroeconomic determinants of insurance industry firms using panel data and other investigating the impact of insurance specific variables on financial development sector of Pakistan applying time series analysis.

5.1 Summary Statistics life and non-life insurance companies (Profitability)

The summary statistics of all variables used in the research for insurance data from 2004-2014, observations, mean, standard deviation, skewness, kurtosis are calculated and the results obtained are mentioned in table 5.1.

Table 5.1: Summary Statistics Life and Non-Life Insurance Companies (Profitability)

Variable	Observation	Mean	Std. dev	Min	Max	Skewness	Kurtosis
ROA	385	0.081	0.052	-0.0008	0.02029	0.6642	3.5094
ROE	385	0.188	0.156	-0.0125	0.6086	1.4930	5.0549
ROIC	385	0.060	0.049	-0.0088	0.1705	0.8830	3.0095
LEV	385	0.636	0.156	0.2920	0.8094	-0.9986	2.7863
LIQ	385	3.532	1.069	2.1800	5.7700	0.9283	2.6742
TAN	385	0.022	0.015	0.0080	0.0586	1.2691	3.2620
PRG	385	25.55	45.18	-48.995	133.53	0.8367	3.7782
AGE	385	8.000	3.166	3.0000	13.000	0.0000	1.7800
RISK	385	3.145	0.936	1.9600	5.2500	0.7516	2.9683
CG	385	4.363	2.229	3.0000	8.0000	1.0206	2.0416
INF	011	0.122	0.540	-0.3300	1.6710	2.0786	6.2846
GDPG	011	4.322	2.001	1.6066	7.6673	0.3014	1.9149

The profitability measures (ROA) shows Pakistani insurance company achieved on average a positive before tax profit over the last eleven years. For the total sample, the mean of ROA is 8.1% with a maximum of 20% and a minimum of -0.08%. Regarding the standard deviation, its mean that the values of ROA diverge from its mean to mutually sides by 5.2 percent which indicates that there was low variation from the mean. This implies that insurance companies incurred loss need to optimize the use of their assets to increase the return on their assets.

On the other side for ROE, the mean value 60% with a maximum value and with a minimum value -0.12%. The standard deviation (SD) for the above series is 15% which shows high variation from mean that results that insurance companies incurred profit need to optimize the use of their equity to increase return on their assets.

As concern to ROIC, the mean value is 6% with maximum value of 17%, minimum value of -0.08% and with standard deviation 0.049.

5.2 Correlation Matrix for life and non-life insurance companies (Profitability)

To check the existence of multi-collinearity in model shows correlations among independent variables which introduce a problem because the estimates of parameters becomes inefficient and shows large standard errors. The results then make the coefficient values and signs unreliable. In addition, multiple independent variables with high correlation add no additional information to the model. It also conceals the real impact of each variable on the dependent variable Anderson et al., 2008). Further it is argued that correlation coefficient below 0.9 may not cause serious multicollinearity problem (Hair et al., 2006). In addition, (Malhotra, 2007) has stated that multicollinearity problems exists when the correlation coefficient among variables should be greater than 0.75.

Table 5.2: Correlation Matrix of Variables

	ROA	ROE	ROIC	LEV	LIQ	TAN	PRG	AGE	RISK	CG	INF	GDPG
ROA	1											
ROE	0.9427	1										
ROIC	0.8177	0.8006	1									
LEV	0.2724	0.32784	-0.050	1								
LIQ	0.40575	0.575489	0.1773	0.592963	1							
TAN	0.05386	-0.11655	0.3115	-0.69628	-0.42269	1						
PRG	0.16766	0.275172	0.0918	0.225359	0.359948	-0.19292	1					
AGE	0.4699	0.553154	0.0977	0.664591	0.681576	-0.46061	0.17213	1				
RISK	-0.3432	-0.21262	-0.479	0.428677	0.521675	-0.72478	0.18928	0.554575	1			
CG	0.55512	0.609647	0.2752	0.430535	0.499207	-0.43815	-0.1555	0.714597	0.144857	1		
INF	-0.2264	-0.22835	-0.143	-0.28625	-0.23279	0.060685	-0.196	-0.36481	-0.22282	-0.316	1	
GDPG	0.1607	0.14526	0.4272	-0.49556	-0.25803	0.635897	-0.0012	-0.55551	-0.72488	-0.0362	-0.1185	1

(Correlation matrix variables results have been obtained using Stata statistical software).

Thus, Correlation of each variable with itself gives the value of 1. The higher values indicate higher correlation the lower value specifies lower correlation. Table 5.2 shows the correlation matrix is not high, so there is no problem of multi-collinearity.

5.2 Test of heterogeneity cross section (for life and non-life insurance companies in Pakistan).

Below graph is presenting cross sectional heterogeneity analysis over the group (cross sections). The red line shows mean value of profitability and blue dots shows the profitability of every insurance company. Ups and down movement of red line shows that there exist cross sectional heterogeneity but at minor level.
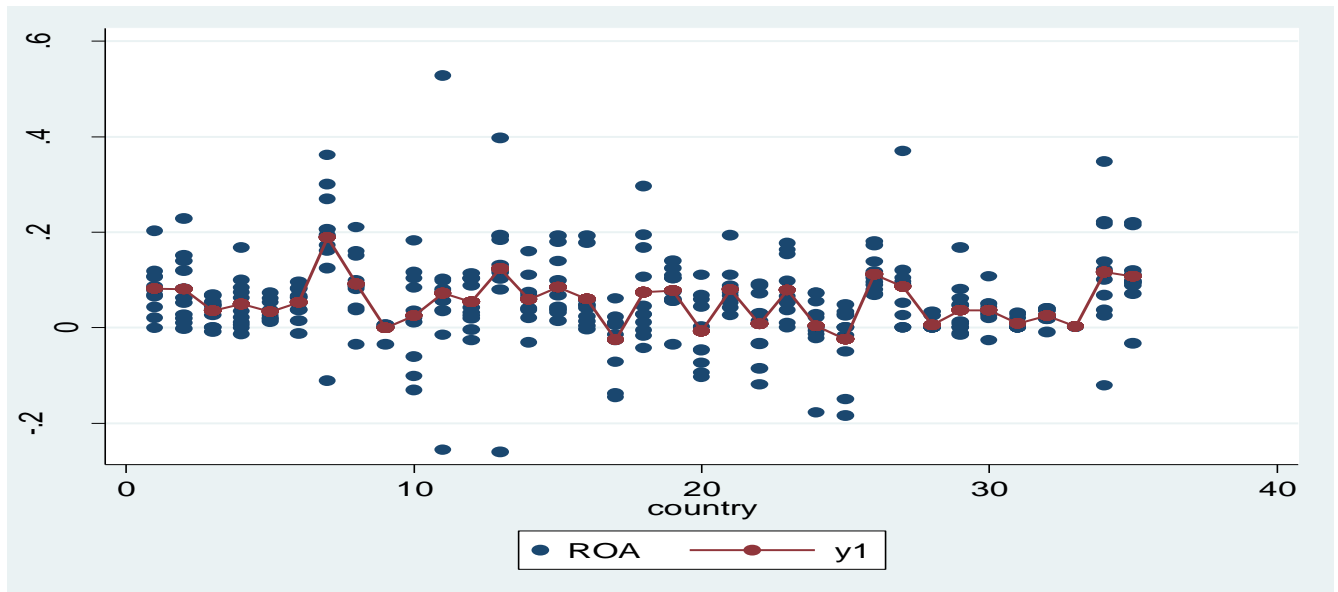
5.1 Graph shows Heterogeneity (Cross section for life and non-life insurance companies in Pakistan)

Therefore the methodology of this study based on fixed effect methodology with assumption that there exist cross sectional heterogeneity and we do not want to calculate cross sectional

heterogeneity. If red line is straight then there is not cross sectional heterogeneity. So as a result on average every insurance company is different from each other at minor level.

5.3 Test of heterogeneity overtime (for life and non-life insurance companies in Pakistan)

Now, cross sectional heterogeneity is checked over the time period. There is possibility that every insurance company may differ over the time.
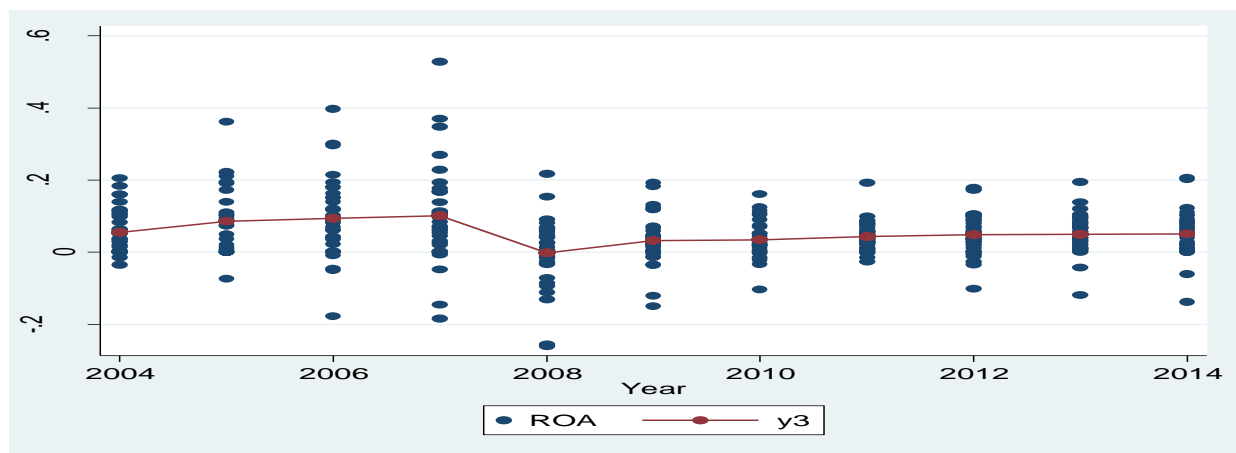
5.2   Graph shows Heterogeneity (Over Time Period for life and non-life insurance companies of Pakistan)

The above graph shows that on average mean value of profitability from track at year 2007, 2008 and 2009, which shows that there exists heterogeneity at years 2007, 2008 and 2009. This heterogeneity exists due to financial crises 2008.

5.3.Impact of Insurance – Specific variables, Corporate Governance and Macroeconomic Variables on ROA, ROE & ROIC for Life and Non-life Insurance Companies of Pakistan.

5.4.1 Impact of Insurance-Specific Variables on Return on Assets (ROA)

The insurance-specific variables taken under consideration in this study are leverage, as abbreviated LEV, liquidity abbreviated LIQ, and tangibility abbreviated as TAN, premium growth abbreviated as PGR, Age abbreviated as AGE and Risk. The results attained by applying panel common effect technique show that liquidity, tangibility and premium growth to be

significant and have a positive impact on the ROA of the insurance companies. Age is significant with a positive mark at 1 per cent significance level. Risk is insignificant with negative sign with ROA. However, Leverage is highly insignificant with ROA. The 1% change in Leverage brings 1.4% change in return on assets. The results show consistent sign with the previous studies of literatures i.e. (Malik, 2011; Chen and Wong, 2004; Shiu, 2014) and (Oshinloye et al, 2009). The R^2 between the mean values of the model is 31.39 per cent. (See Table 5.3).

5.4.2 Impact of Insurance-Specific Variables on Return of Equity (ROE)

The influence of insurance specific variables is also checked on return of equity of the insurance companies which too in literature has been considered as an important profitability determinant. The leverage, liquidity, tangibility, premium growth, age and risk are the variables of this study. The estimations originated varied results where Tangibility and premium growth are found to be significant with a positive impact on ROE at 5 per cent significance level, moreover risk and leverage are found insignificant with negative sign. Age is significant at 1 % level of significance. The R^2 of the model is 31.30 percent. (See Table 5.3). The results show consistent sign with the previous studies of literatures i.e. (Malik, 2011; Chen and Wong, 2004; Shiu, 2014) and (Oshinloye et al, 2009).

5.4.3 Impact of Insurance-Specific Variables on Return on Invested Capital (ROIC)

Return on invested capital (ROIC) is also considered as a profitability indicator, while regressing the same variables for ROIC almost all the variables are found to be low significant than results of ROA and ROE. Leverage, premium growth and tangibility are insignificant while liquidity is significant at 10 per cent significance level. In this case again age is significant with 1 per cent significance level. The results show consistent sign with the previous studies of literatures i.e.

(Malik, 2011; Chen and Wong, 2004; Shiu, 2014) and (Oshinloye et al, 2009). The R^2 has low values of 23.52. (See Table 5.3).

Table 5.3: Results of Insurance Insurance specific Variables on ROA, ROE and ROIC

Variables	(ROA)	(ROE)	(ROIC)
Constant	0.187* (0.000)	0.043 (0.295)	0.218* (0.000)
Leverage	0.015 (0.534)	-0.086 (0.158)	.005 (0.875)
Liquidity	0.002** (0.013)	0.013** (0.033)	0.005*** (0.058)
Tangibility	.0732545** (0.019)	-.1936022** (0.034)	-.1129487 (0.230)
Premium Growth	.000148** (0.020)	.0004494** (0.020)	.0001085 (0.183)
Age	.0012499* (0.003)	.0020432* (0.001)	-.0048324* (0.003)
Risk	-.0004267 (0.829)	-.0015597 (0.737)	-.000354 (0.889)
R^2	0.3139	0.3130	0.2352

Note: The values in brackets below the coefficient are p values. The *, ** and *** symbolize significance at 1%, 5%, and 10% respectively.

5.4.4 Impact of Insurance - Specific Variables and Corporate Governance on Return on Assets (ROA)

This estimation is an extension to model 1, an addition of variable of corporate governance is added and the impact of all insurance companies' specific variables along with corporate governance is checked. The R^2 of the model is 33.61 per cent which has increased by adding the variable of corporate governance. Leverage and age are significant at 1%, Premium growth and corporate governance is with 5% level of significance while leverage, Tangibility and risk are insignificant. The coefficients of all firms specific variables and corporate governance in table order are -0.006, 0.005, -0.087, .0002, 0.001, -0.001, .0003. The results show consistent sign of

coefficient and effects on ROA with the previous studies of literatures i.e. (Malik, 2011; Chen and Wong, 2004; Shiu, 2014) and (Oshinloye et al, 2009).

5.4.5 Impact of Insurance - Specific Variables and Corporate Governance on Return of Equity (ROE)

This model is in continuation to model 4.7 by adding internal regulation which is corporate governance. All the Insurance companies' specific variables along with corporate governance variable are regressed against ROE and it is found that liquidity, premium growth and corporate governance are positively significant at 5% level of significance while age is significant at 1% level of significance. Leverage, tangibility and risk are again insignificant regressing with ROE. The coefficient of parameters in table order are -0.080, 0.013, -0.193, 0.0004, 0.002, -0.002 and 0.004. The results shows consistent sign of coefficient and effects on ROA with the previous studies of literatures i.e. (Malik, 2011; Chen and Wong, 2004; Shiu, 2014) and (Oshinloye et al, 2009). The R^2 of the model is 31.81 per cent. The R^2 has increased from 31.30 to 31.81 by adding the variable of corporate governance.

5.4.6. Impact of Insurance - Specific Variables and Corporate Governance on Return on Invested Capital (ROIC)

After estimate the model 4.11 against ROIC the value of R^2 is 23.33%. Most of the insurance specific variables are insignificant except age, corporate governance and liquidity which are significant at 1%, 5% and 10% significance level. Here corporate governance is positively significant.

Table 5.4: Results of Insurance specific and Governance Variables on ROA, ROE and ROIC

Variables	Model 4 (ROA)	Model 5 (ROE)	Model 6 (ROIC)
Constant	0.027 (0.129)	.0603119 (0.227)	.2291927* (0.000)
Leverage	-.0061032 (0.771)	-.0807453 (0.188)	.0070142 (0.820)
Liquidity	.005666* (0.006)	.0130475** (0.036)	.0054323*** (0.057)
Tangibility	-.0872632 (0.014)	-.1934243 (0.035)	-.113751 (0.227)
Premium Growth	.0001578** (0.012)	.0004485** (0.020)	.0001081 (0.185)
Age	.0006985* (0.004)	.0019908* (0.001)	-.004858* (0.003)
Risk	-.0014611 0.370	-.0015884 0.734	-.0004196 0.868
CG	.0003565** (0.043)	.0035113** (0.034)	.0021995** (0.038)
R^2	0.3361	0.3181	0.2333

Note: Note: The values in brackets below the coefficient are p values. The *, ** and *** symbolize significance at 1%, 5%, and 10% respectively.

5.4.7 Impact of Insurance -Specific Variables, Corporate Governance and Macroeconomic Variables on Return on Assets (ROA)

This study estimates all the previous variables (insurance company's specific, corporate governance with the macroeconomics variables inflation and annual growth of GDP) just to see whether macroeconomic factors have any kind of impact on the profitability of insurance companies. Just a two macroeconomic variables are taken and regressed against ROA. Inflation and GDP growth is found to have a significant positive relation with the ROA of the insurance companies at 1 per cent significance level. A positive relation with GDPG indicates that with the rising GDP the profitability of insurance companies will rise automatically and there are exogenous factors that do influence the profitability of the insurance companies. Other than

inflation and GDPG, liquidity, age, premium growth, corporate governance and tangibility have a positive significant stimulation towards the return of assets of insurance companies. Leverage and risk remained insignificant to ROA. The R^2 of the insurance companies as per results is 34.91 per cent. The sign of the coefficients of the parameters are as per table series of variables 0.001, 0.007, -0.084, 0.0001, 0.001, -0.002, 0.001, -0.019, 0.010. The results match with the previous study on insurance company's determinants and profitability all over the world.

5.4.8 Impact of Insurance -Specific Variables, Corporate Governance and Macroeconomic Variables on Return on Equity (ROE)

The study used all the variables including insurance company's specific, corporate governance along with macroeconomic to see the impacts on ROE and it is analyzed that the INF and GDPG, two macroeconomic variables stood significant with ROE at 1% level of significance. LIQ, AGE, PRG, TAN and CG stand significant at 1 and 5 per cent respectively. LEV and RISK stand insignificant. R^2 is 33.03. which is significant.

5.4.9 Impact of Insurance-Specific Variables, Corporate Governance and Macroeconomic Variables on Return on Investment Capital (ROIC)

R^2 of the model is calculated to be 40.9 per cent. The variables LEV, PGR, RISK are insignificant, LIQ and TAN are significant at 5% while AGE, INF, CG and GDPG are positive significant with 1% confidence interval.

First of all hausman test has been track during estimates above results, Hausman tests supports random effect is appropriate for estimating insurance specific, corporate governance and macroeconomic variables for life and non- life insurance companies of Pakistan. (See results in appendix).

Table 5.5 : Results of Insurance Specific and Governance and Macroeconomic Variables on ROA, ROE and ROIC

Variables	(ROA)	(ROE)	(ROIC)
Constant	-0.029 (0.146)	-.0907666 (0.127)	-.0152581 (0.513)
Leverage	.0013385 (0.947)	-.0594921 (0.322)	-.0204859 (0.387)
Liquidity	.0067323* (0.001)	.0161609* (0.008)	.005172** (0.033)
Tangibility	-.0839033** (0.013)	-.1934761** (0.032)	-.0678696** (0.048)
Premium Growth	.0001191** (0.045)	.0003468*** (0.066)	.0000908 (0.232)
Age	.0007801* 0.001	.0021487* 0.000	.0007995* 0.000
Risk	-.0015985 (0.300)	-.0018033 (0.692)	-.0016273 (0.361)
CG	.0013881** (0.037)	.0012625** (0.042)	.0000914* (0.006)
INF	-.018723* (0.005)	-.0296802 (0.162)	-.0261218* (0.002)
GDPG	.0107418* (0.000)	.0285706* (0.000)	.0113491* (0.000)
R^2	0.3491	0.3303	0.4029

Note: The values in brackets below the coefficient are p values. The *, ** and *** symbolize significance at 1%, 5%, and 10% respectively.

5.4.10 Impact of Insurance Specific, CG and Economic variable on Profitability using Random Effect Model overall Analysis

First the study applied panel data random and fixed effect model estimation. Hausman test is applied and it supports the Random effect model. Further for robustness check the study has used the components of CG not the index because some of components are doing well. The results of random effect model are given below.

Table 5.6: Impact of Insurance Specific, CG, and Economic Variable on Profitability (ROA, ROE and ROIC Overview)

	ROA			ROE			ROIC		
Constant	.187* (0.000)	.0273722 (0.129)	-.0297943 (0.146)	.0438289 (0.295)	.0603119 (0.227)	-.0907666 (0.127)	.2186681* (0.000)	.2291927* (0.000)	-.0152581 (0.513)
Leverage	.014854 (0.534)	-.0061032 (0.771)	.0013385 (0.947)	-.085674 (0.158)	-.0807453 (0.188)	-.0594921 (0.322)	.004811 (0.875)	.0070142 (0.820)	-.020485 (0.387)
Liquidity	.00222** (0.013)	.005666* (0.006)	.0067323* (0.001)	.0131745 (0.033)	.01304** (0.036)	.0161609* (0.008)	.0054*** (0.058)	.0054*** (0.057)	.005172** (0.033)
Tangibility	.07325** (0.019)	-.0872632 (0.014)	-.08390** (0.013)	-.19360** (0.034)	-.1934243 (0.035)	-.1934761** (0.032)	-.1129487 (0.230)	-.113751 (0.227)	-.06786** (0.048)
Premium Growth	.000148** (0.020)	.0001578** (0.012)	.0001191** (0.045)	.0004494** (0.020)	.0004485** (0.020)	.0003468*** (0.066)	.0001085 (0.183)	.0001081 (0.185)	.0000908 (0.232)
Age	.0012499* (0.002)	.0006985* (0.004)	.0007801* (0.001)	.0020432* (0.001)	.0019908* (0.001)	.0021487* (0.000)	-.004832* (0.003)	-.004858* (0.003)	.0007995* (0.000)
Risk	-.0004267 (0.829)	-.0014611 (0.370)	-.0015985 (0.300)	-.0015597 (0.737)	-.0015884 (0.734)	-.0018033 (0.692)	-.000354 (0.889)	-.0004196 (0.868)	-.0016273 (0.361)
CG		.0003565** (0.043)	.0013881** (0.0370)		.0035113** (0.034)	-.0012625** (0.042)		.002199** (0.0383)	.000091* (0.006)
INF			-.018723* (0.005)			-.0296802 (0.162)			-.0261218* (0.002)
GDPG			.0107418* (0.000)			.0285706* (0.000)			.0113491* (0.000)
Hauseman P Value	0.0082	0.0158	0.3930	0.0361	0.0571	0.8000	0.0024	0.0048	0.0766
R^2	31.39	33.61	34.91	31.30	31.81	33.03	23.52	23.33	40.29

Note: The values in brackets below the coefficient are p values. The *, **, *** and [symbolize] significance at 1%, 5%, and 10% respectively

The various results after estimating of the insurance specific, corporate governance and macroeconomics variables on ROA, ROE and ROIC the results shows that ROA is good proxy as compare to ROE and ROIC. The literature also proves this that profitability as the most important variable can be measured from several ways, however ever among them ROA is the best proxy which results are more reliable, accurate and efficient. Malik (2011), Chen and Wong (2004), Shiu (2014), Oshinloye et al (2009) and Kashish & Kashram (1998) etc.

5.5. Impact of Insurance – Specific variables, Corporate Governance and Macroeconomics Variables on Life Insurance Companies of Pakistan

First, test for cross section heterogeneity for life insurance companies of Pakistan has been obtained, after that heterogeneity over the time period and then using hausman test; estimated results.

5.6 Test of Cross Section Heterogeneity (for Life Insurance Companies of Pakistan)

Below graph is presenting the cross sectional heterogeneity analysis over the group (Cross sections). The red line shows mean value of profitability and blue dots shows the profitability of every insurance company. Ups and down movement of red line shows that there exist cross sectional heterogeneity but at minor level. Therefore the methodology of this study based on fixed effect methodology with assumption that there exist cross sectional heterogeneity and we do not want to calculate crosses sectional heterogeneity. If red line is straight then there is not cross sectional heterogeneity. So as a result on average every insurance company on average is different from each other at minor level.

5.7 Test of Heterogeneity Over time Period (for life insurance companies of Pakistan)

The Cross Sectional Heterogeneity is checked over the time period. There is possibility that every Life insurance company may differ over the time. The above graph shows that on average mean value of profitability from track at year 2007, 2008 and 2009, which shows there exists heterogeneity at years 2007, 2008 and 2009. This heterogeneity exists due to financial crises 2008.
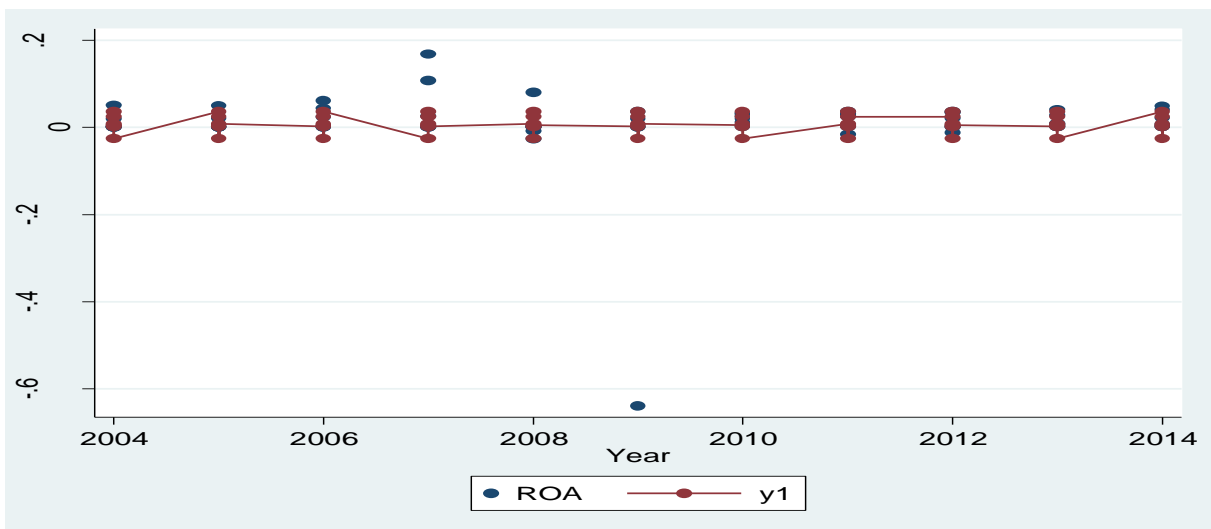
5.4 Graph shows Heterogeneity (Over Time Period for life insurance companies of Paksitan)

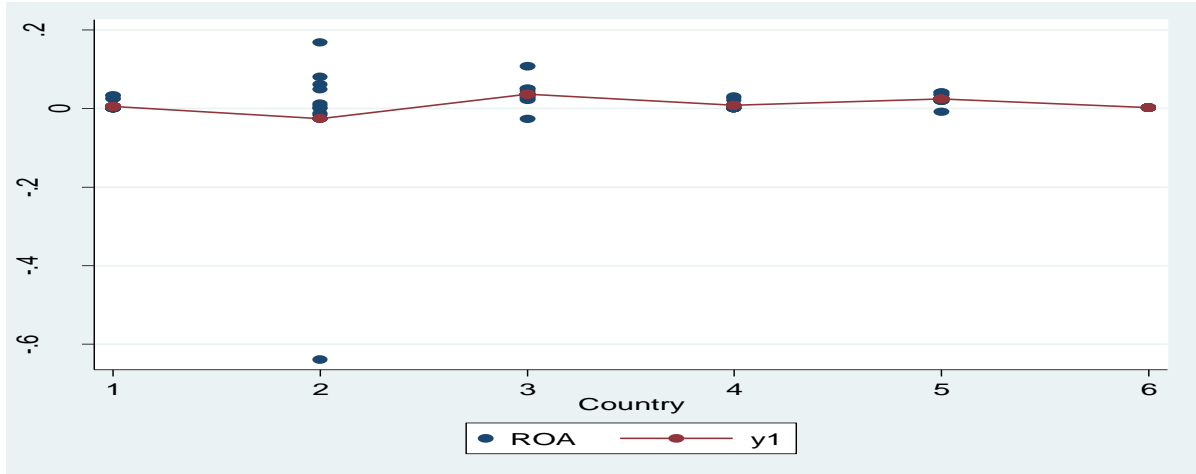The estimated results of insurance specific variables, corporate governance and macroeconomics variables for life insurance companies of Pakistan show that leverage, risk and age are positively significant at 5% significance level. Corporate governance, inflation and GDP Growth are significant at 10%. All the others variables are insignificant with ROA. The R square which is different from traditional R square, if the difference between "within R square and overall R square is high, fixed effect is better to estimates the results. Since here the difference is high than normal therefore, fixed effect is applied. The Hausman P value 0.038 also shows us that fixed effect is best to estimates the results. The diagnostic test rho value is 0 which means that there is no heterogeneity over cross section. The R^2 value is 0.3898.

Table 5.7 Results of Insurance Specific variables, Corporate Governance and Macroeconomics Variables on Life Insurance Companies ROA by Fixed Effect Model

Variable	Coefficient	P value	t-statistic
Constant	-0.029	(0.799)	-0.26
Leverage	.0505247**	(0.020)	2.28
Liquidity	.0155829	(0.302)	1.30
Tangibility	-2.734283	(0.460)	-4.96
Premium Growth	.0001275	(0.217)	1.25
Age	.003974**	(0.464)	3.74
Risk	-.0052735**	(0.045)	-2.70
CG	.0053652***	(0.097)	-7.29
INF	-.0068635***	(0.072)	2.35
GDPG	.0011227***	(0.086)	2.17
Diagnostic Test			
R^2 within = 0.4316	between= 0.3000		overall = 0.3898
sigma_u .08168235	sigma_e .07138736	rho .566954	

5.8 Impact of Insurance – Specific variables, Corporate Governance and Macroeconomics

Variables on NON – Life Insurance Companies in Pakistan.

To estimates the results for insurance specific, corporate governance and macroeconomic

variables for Non-life insurance companies, same procedure has been adopted explained in 5.7.

The results are explained below.

5.9 Test of heterogeneity cross section (for non-life insurance companies of Pakistan)
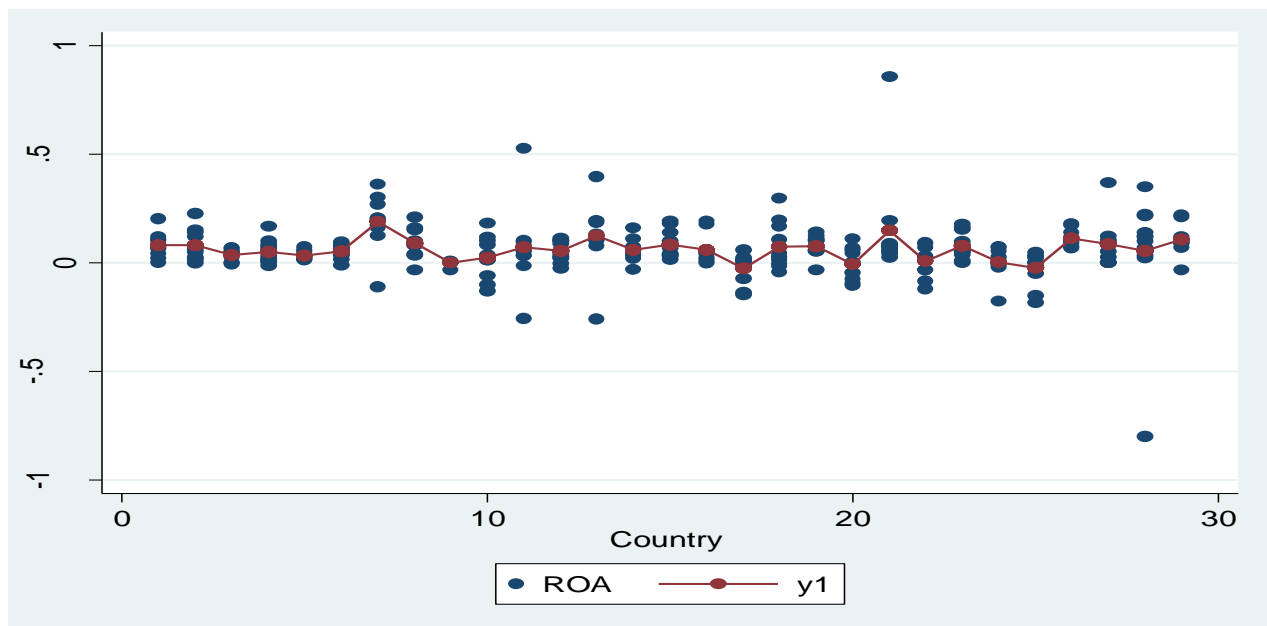
5.3 Graph shows Heterogeneity (Cross section)

The above graph is presenting the cross sectional heterogeneity analysis over the group for Non-

life insurance companies (Cross sections). The red line is showing mean value of ROA and blue

dots shows the ROA of every Non- life insurance company. If red line is straight then there is not

cross sectional heterogeneity.

Therefore, as a result on average every insurance company on average is different from each other at minor level.

5.10 Test of Heterogeneity (Over Time Period for Non-Life insurance companies of Pakistn)
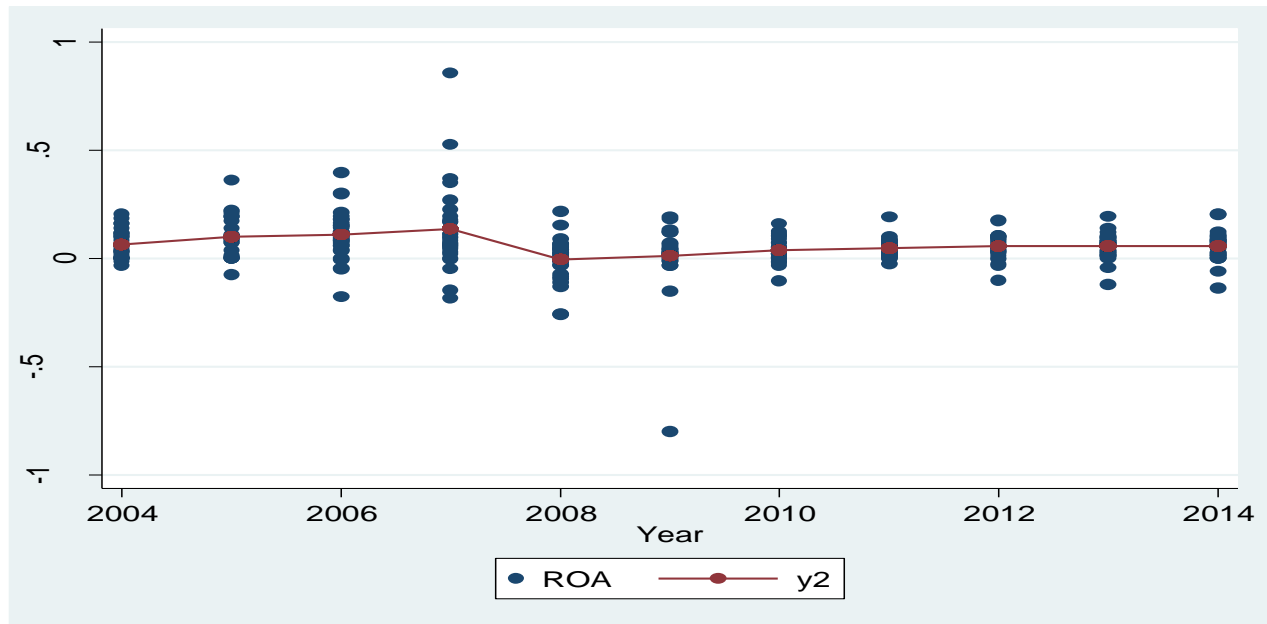
5.5 Graph shows Heterogeneity (Over Time Period for Non-life insurance companies of Pakistan)

The above graph is showing that on average mean value of Return on Assets (ROA) deviate from track at year 2006, 2007 and 2008, which shows there is exists heterogeneity at years 2007, 2008 and 2009. This heterogeneity exists due to financial crises 2008.

From the previous studies as well as from the current studies, It has been seen that Insurance business specific variables e.g. Leverage, liquidity, tangibility, premium growth, age and risk, corporate governance along with macroeconomics variables such as inflation and interest have various effects on insurance companies profitability. From above using nine regression equations for overall insurance companies in Pakistan, the results shows that ROA is good proxies which

results are consistent and significant as compare to ROE and ROIC. Therefore, using only ROA as profitability indicator compare the impact of all above described variables on non–life insurance companies in Pakistan.

Table 5.8 Results of Insurance variables, Corporate Governance and Macroeconomics Variables on NON – Life Insurance Companies on ROA by Random Effect Model

Variable	Coefficient	P value	z-statistic
Constant	-0.029	(0.246)	-1.16
Leverage	-.0005673**	(0.024)	-2.17
Liquidity	.004662***	(0.093)	3.50
Tangibility	. -.0209774	(0.209)	-1.26
Premium Growth	-1.70e-06***	(0.086)	-2.16
Age	.0006277	(0.540)	2.45
Risk	-.00121**	(0.033)	-5.97
CG	-3.16e-06**	(0.099)	-2.00
INF	-.0178621	(0.963)	-1.67
GDPG	.0149217*	(0.000)	5.03
Diagnostic Test			
R^2 within = 0.1002 between= 0.2166 overall = 0.4207			
sigma_u .02764315 sigma_e .1005028 rho .07033104			

Note: The Hausman test support Random Effect Model. The *, ** and *** symbolize significance at 1%, 5%, and 10% respectively.

The results are derived through Stata statistical software; first of all I checked the data for heterogeneity cross section and over the time period. After that random effect and fixed effect; I applied Hausman test which shows that random effect is better to be used. As the Hausman value is 0.46 which is more than 0.01 therefore random effect is suitable to apply. The results of the random effect shows us that leverage, liquidity, corporate governance, premium growth, risk and GDP growth are significant while all others variables are insignificant.

Now the diagnostic tests of this model indicate that R square`s explanation of above model is not similar to the traditional R square. Within R Square means difference between mean and actual value like this (X-X bar). Between R Square shows the every group mean value and Overall R square indicates the whole column mean. The overall R square is 0.4207 for the non-life insurance companies of Pakistan.

The other main issue which occurs on sigma, sigma_e and rho. Sigma_u means standard deviation among firms error terms. Sigma_e shows overall standard deviation of error terms (whole column`s standard deviation). Rho indicates $\frac{(S.D\_U)^{-2}}{(S.D\_U)^{-2}+(S.D\_e)^{-2}}$ when S.D_U will be increase then rho will be also increases it means rho is determinants by S.D_U. So rho is an interclass correlation and tells us about cross sectional heterogeneity. In above model rho value is 0.07 which indicates that 7% variation exist due to different of cross sectional (insurance) variations.

5.11 Impact of Insurance Sector on Financial Development Sector of Pakistan

To determine impact of insurance sector on financial development sector of Pakistan, quarterly timer series data[5] of thirty five insurance life and non-life companies are taken for eleven years. The Johanson Julious cointegration approach is applied for analysis. The first step is to test for

the stationarity of the data and ADF test is applied for this purpose. All the redundant variables has been excluded from the model. After VAR results, Johenson Julious cointegeration approach is applied for analysis. Static long run and VECM were obtained to see impact of insurance on financial development sector in longrun as well as in short run. The results reported in Table 5.11 indicate that all the variables are integrated of order (1).

Unit Root Test:

Table 5.9 Shows Unit Root Test

	At level		1st difference		Integrated Order
Variables	**ADF test statistics**	**Critical Values**	**ADF test statistics**	**Critical Values**	
FR	-1.86	-5.87	-11.63	-3.44	I(1)
INF	-2.71	-3.48	-21.27	-5.67	I(1)
NIC	-1.83	-7.44	-17.34	-2.98	I(1)
PLI	-0.88	-5.49	-15.93	-4.86	I(1)
PNL	-2.40	-6.78	-20.04	-6.23	I(1)
TII	-2.01	-4.32	-11.44	-7.34	I(1)

When the order of integration between the variables is one then we apply co integration test. This test shows the long run interdependence among the dependent and independent variables. Null and alternative hypothesis are made in this context. The null hypothesis states no co integration among the different variables whereas the alternative hypothesis states co-integration among the different variables. Tables below show the co integration test results.

Once it has been established that all variables are integrated of the same order, move on to the next step, that is, to find a co-integrating relationship between the variables. The co-integrating properties are examined using two test statistics, trace and maximum eigen value. The VAR is

estimated for insurance and financial development variables. The appropriate lag length is chosen on the basis of the Schwarz Criteria. The results of both the trace statistics and the maximum eigen value statistics show evidence of one co-integrating relationship amongst the insurance variables and financial development.

Table 5.10 Lag length Creteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	95.498	NA	0.000	-4.415	-4.206	-4.338
1	261.826	283.97*	0.008*	-11.308*	-10.054*	-10.852*
2	268.243	9.392	0.000	-10.402	-8.103	-9.565
3	282.217	17.040	0.000	-9.864	-6.521	-8.647
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

After removing the redundant variables, and existing variable stationarity, Lag length creteria has been checked. I come to the following conclusion that all given table indicator support one lag in the model .

After this Johonson cointereration test is applied to get results. (See table 5.11 & 5.12).

Table 5.11 Johansen co-Integration Test Results (Trace Statics)

	Trace Statisitcs	Critical values	Trace Statisitcs	Critical values
None *	0.496	74.695	69.819	0.019
At most 1	0.454	46.625	47.856	0.065
At most 2	0.336	21.841	29.797	0.307
At most 3	0.099	5.022	15.495	0.806
At most 4	0.018	0.726	3.841	0.394

Note The* Indicates the number of co integrating equations corresponding to that row of the table.

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

One lags included in the vector auto regressions are determined using the Likelihood Ratio (LR) test.

The results of the trace statistics value statistics show evidence of one co-integrating relationship among the insurance variables and financial development. When the variables are co integrated that is there is a long run relationship between them, there may be disequilibrium in the short run that is adjusted in long run.

If co integration exists, then according to the Granger representation theorem, there must present an error correction mechanism in the system of equations.

Therefore, VECM is natural candidate of the model to be estimated. The long run equilibrium relationship can be shown by linear combination of these variables. (Johansen 1988 ; and Johansen, Juselius, 1990).

Table-5.12 Normalized Co-Integrating Coefficients

Variables	Coefficients	Standard Errors	t-Values
INF	0.007	0.002	-3.5*
NIC	-0.017	0.006	2.8*
PLI	-2.453	0.649	-3.8*
PNL	-2.151	0.531	4.1*
TII	-3.412	0.441	-7.7*

The results presented in Table 5.12 show the long run normalized cointegrating relationship among the variables. In the above table the values of t-statistics are significant at 1% level of significance. The results of estimation show that all the independent variables have significant impact on the dependent variable. All the independent variables including in the study show the same sign as expected. Premium of life insurance company, premium of non-life insurance [5]company, number of insurance companies, total investment in insurance company and inflation have strong and significant impact on financial development sector in the long run.

As the variables have long run co integration so there must also be short run co integration among the variable. For this we have to calculate the VECM for the short run analysis.

Table 5.13 VECM Results: Short Run Relationship and Error Adjustments

Error Correction:	D(FR)	D(INF1)	D(LNPLI)	D(LNPNL)	D(LNTII)
CointEq1	0.000	-0.733	0.034	0.191	-1.348
	[0.009]	[-0.541	[0.119]	[1.057]	[-2.343]
D(FR(-1))	-0.014	0.765	-0.272	-0.287	1.128
	[-0.060]	[0.095]	[-0.164]	[-0.269]	[0.333]
D(INF1(-1))	0.000	0.017	0.000	-0.004	0.033
	[0.010]	[0.095]	[0.009]	[-0.169]	[0.431]
D(LNPLI(-1))	-0.016	-0.020	-0.265	-0.093	-0.351
	[-0.363]	[-0.014]	[-0.883]	[-0.478]	[-0.571]
D(LNPNL(-1))	-0.002	0.028	-0.033	-0.019	0.015
	[-0.029]	[0.014]	[-0.075]	[-0.067]	[0.016]

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5 The data for estimation is used as quarterly data which observations are more than 30.

D(LNTII(-1))	-0.001	0.006	-0.013	-0.006	-0.003
	0.013	0.428	0.089	0.057	0.182
	[-0.057]	[0.014]	[-0.143]	[-0.107]	[-0.016]
C	0.004	-0.017	0.065	0.028	0.045
	[1.582]	[-0.207]	[3.894]	[2.602]	[1.315]
R-squared	0.017	0.009	0.093	0.074	0.142

The coefficients of speed of adjustment and their respective standard errors are shown in the table listed above. The speed of adjustment is the most important concept here. This speed of adjustment tells that in how much time the economy attains its long run equilibrium. Here also the most important concept is convergence and divergence. Those speed of adjustments which have negative sign show the time in which the economy tends to converge to the long run equilibrium and those speed of adjustments which have positive sign show the time in which the economy tends to diverge to the long run equilibrium. Here from above analysis of the table it is concluded that NIC, PNL, PLI, TII has positive and significant impact on financial development sector while Inflation has negative impact on financial development sector. The result of long run relationship is normally same as in the short run. The results reported in row one of Table 5.13 indicate that the error adjustment to financial development has occurred through changes in the insurance related variables where the lagged error correction terms are negative and significant. The results show that only adjustment in TII will lead to long run equilibrium relationship.

Chapter 6

SUMMARY, CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The study is conducted to find what kind of relationship exists between profitability and insurance company specific, corporate governance and macroeconomic variables. The profitability indicators are ROA, ROE and ROIC calculated from the insurance companies' balance sheets. Later, the panel common effect estimation technique is used to find the nature of relationship that exists between the profitability and determinants of profitability. Then the impact of insurance variable on financial development is estimated applying time series analysis. The data for the period (2004-2014) has been extracted from Insurance Association of Pakistan (IAP), Balance sheets and some unstructured questionnaire from the insurance company's management department.

The study is on the performance of insurance companies, therefore performance has been analyzed with various ways. First, for measuring the determinants of performance of life insurance companies, the insurance specific variables, corporate governance and macroeconomics variables are regressed against profitability of life insurance companies. The result shows that leverage, age, risk along with corporate governance and macroeconomics variables (inflation and GDP growth) have significant role in profitability of insurance companies in Pakistan. Whereas, liquidity, tangibility, premium growth are found insignificant effect on profitability.

Second, In estimating performance of non-life insurance companies, the results leads to conclusion that leverage, premium growth, risk, CG and liquidity are significant and have

positive effect on profitability of insurance companies, while age, tangibility, inflation are non-significant and does not play a key role in profitability of insurance companies of Pakistan.

Thirdly, the performance of life and non-life insurance companies, the results indicate that liquidity, tangibility, premium growth and age are significant and are important variables to effect the profitability. Whereas corporate governance and macroeconomic variables have a significant result and effects profitability of insurance companies. Leverage and risk are not significant and does not perform a key role in profitability of insurance companies.

Insurance specific Variables, leverage, liquidity, tangibility, premium growth, risk and age are taken in this research for study and have regressed against different indicators of profitability Return on Asset (ROA), Return on equity (ROE) and Return on invested capital (ROIC), The results of determinants varies with different indicators of profitability. Thus come to the conclusion that it performs different roles in profitability of insurance companies. Here we discuss to know the behaviors the of firms specific variables.

Corporate governance is internal regulatory mechanisms that operates inside insurance companies and is adopted firstly because it is an international practice provided by SECP Corporate Governance Code, 2013 has specially focused on insurance companies. It is mandatory to satisfy this requirement and secondly because it is an internal control system of insurance companies and owners of insurance companies feel protected when these requirements are adopted. For example, it is an attribute of corporate governance that the audit committee of insurance companies should be independent, provided the committee is influenced by others there is a probability that the fraud and forgeries in insurance companies can take place, the staff involved can get away with it easily and the case will be absolved without any inquiries. Such moral hazard issues can be damaging not only to premium payer and shareholders but also to the

owners of insurance companies. This study has taken five attributes of corporate governance quantified with dummy variables to test whether there is any kind of impact on profitability. It is found that corporate governance has positive relationship with profitability. It is inferred from the results that primarily, the introduction to the mechanism of corporate governance to be adopted by insurance companies was to lessen the moral hazard problems that ascended within insurance companies. This is mainly implemented to mitigate the dangers of bankruptcy and insolvency. The focus on subject of corporate governance came into consideration internationally in 1980's and was implemented in Pakistan in 2002. Still there is a room for improvement in the mechanism for proper implementation of all the attributes of corporate governance in Pakistan. It is required that the financial statements of insurance companies should be prepared by other accountancy firms, the financial statements are published, the shareholders are given minute details, all treated as an expense to insurance companies. Furthermore the independence of board and the size of board does impact the profitability, for instance the large size of board can be injurious to performance. The size of board and the independence of board were the attributes that we have put into consideration and can be the factors that need to be carefully administered because they are directly linked to performance. Likewise, the managerial ownership also has an important connection with the performance and profitability, where its concentration should be considered and the executives must be given as much shares where they start giving outstanding performance. It is believed that the CEO duality has a negative impact on the performance of insurance companies. Furthermore, the results show that corporate governance is found to be positive relation with Return on Assets.

The impact of macroeconomic variables on profitability is also verified whether it has an impact on profitability indicators, ROA ROE and ROIC. It is found that the GDP growth is positively significant to ROA and insignificant to ROE and ROIC.

Insurance sector impact financial development sector of Pakistan and has a keen role in the economy. From the results it is obtained that number of insurance companies, total investment, premium of life insurance companies and premium of non-life insurance companies have positive effect in both long run and short run on financial development. Inflation is a control variable and have a negative impact on financial development.

6.2 Recommendation

For comprehensive understanding regarding determinants of profitability, future researchers should include all insurance companies of Pakistan both corporate in foreign and locally owned.

- Pakistani insurance industry has improved a lot after the insurance ordinance Act, 2000 under SECP but the study recommends that there is still a need for a second generation insurance reforms in Pakistan. E.g. promoting tele marketing and internet based marketing of insurance product needs to be encouraged, risk focused, forward looking approach: prompt and effective response to high priority issues.

- The code of corporate governance should be implemented and all the attributes should be incorporated by financial firms (insurance companies) to avoid bankruptcy and insolvency of insurance companies in Pakistan.

- GDP growth is linked to the profitability therefore the successful insurance companies should protect themselves at the time of recession so that the adverse situations do not impact them severely.

6.3 Future Prospects of the Study

- This study is conducted taking into account insurance specific , corporate governance and macroeconomic factors for life and non-life insurance companies in Pakistan, advanced research can be conducted for Takaful.

- Only two macroeconomic variables were incorporated to see the impact on profitability, numerous macroeconomic variables have an influence on profitability of insurance companies.

- Data envelopment analysis or stochastic frontier analysis can be applied by researcher to measure efficiency of insurance companies of Pakistan.

- Future researchers can also study on qualitative variable to capture the comprehensive impact of profitability and financial development.

- Future researcher can study insurance performance before 2008 crises and after 2008 crisis till dated.

- From December, 2016 insurance association of Pakistan (IAP) will publish annual report, the researcher will have enough data to compare profitability between Takaful and Insurance companies.

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APPENDIX

List of Insurance Companies in Pakistan Registered on IAP - 2014-2015 (Annual Book)

S.No	Name of the Insurance Company
	Non- Life Insurance Companies
01	ACE Insurance Ltd.
02	Adamjee Insurance Co. Ltd
03	Alfalah Insurance Company Ltd
04	Alpha Insurance Co. Ltd
05	Asia Insurance Co. Ltd
06	Askari Gen. Insc. Co. Ltd
07	Atlas Insurance Limited
08	Century Insurance Co. Ltd
09	Co-operative Insc. Society of Pak. Ltd
10	Crescent Star Ins. Co. Ltd
11	East West Insurance Co. Ltd
12	EFU General Ins. Ltd
13	Excel Insurance Co. Ltd
14	Habib Insurance Co. Ltd
15	IGI Insurance Limited
16	Jubilee General Insurance Co. Ltd
17	New Hampshire Insc. Co
18	Pakistan Gen. Insc. Co. Ltd
19	PICIC Insurance Limited
20	Premier Insurance Limited
21	Reliance Insurance Co. Ltd

22	SPI Insurance Company Ltd
23	Security Gen. Insc. Co. Ltd
24	Shaheen Ins. Co. Ltd
25	Silver Star Ins. Co. Ltd
26	TPL Direct Insurance Limited
27	UBL Insurers Limited
28	United Ins. Co. of Pak Ltd
29	Pakistan Reinsurance Company Limited
	LIFE INSURANCE COMPANIES
01	State Life Insurance Corporation of Pakistan
02	Adamjee Life Assurance Company Ltd.
03	East West Life Assurance Company Ltd.
04	EFU Life Assurance Limited
05	IGI Life Insurance Limited
06	Jubilee Life Insurance Company Ltd.

Table 5.8 Housman Test for Impact of Insurance Business Specific Variables, Corporate Governance and Macroeconomic Variables on Life Insurance Companies for ROA

	Fixed Effect	Random Effect	Difference
Leverage	0.051	0.01700	0.3352
Liquidity	0.015582	0.015069	0.0005134
Tangibility	-2.73428	-2.103155	-0.6311225
Premium Growth	0.00012	0.000083	0.0000442
Age	0.003974	-0.0001152	0.0040892
Risk	-0.005273	-0.0001241	-0.005149
CG	0.0018652	0.0047527	0.0028874
INF	0.0068635	0.0058836	0.00098

GDPG	0.001127	-0.0006431	0.00017658
			Housman P Value 0.03861

Table 5.10 Housman Test for impact of Insurance business specific variables, corporate governance and macroeconomic variables on Life Insurance Companies for ROA

	Fixed Effect	Random Effect	Difference
Leverage	-0.0001	-.0005673	.0004217
Liquidity	.006657	.004662	.0019952
Tangibility	-.006622	. -.0209774	.0143548
Premium Growth	-1.45e-0	-1.70e-06	2.47e-07
Age	-.002679	.0006277	-.0033072
Risk	-.001195	-.00121	.0000149
CG	-1.12e-06	-3.16e-06	2.03e-06
INF	-.0259601	-.0178621	-.0080981
GDPG	.0116584	.0149217	.0005783
		Houseman P Value	0.4615

The End.