

Financial and Economic Factors that influence Profitability of Insurance Sector in Pakistan

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Abstract

This paper is aimed to explore the effects of financial and economic factors on Profitability in the insurance sector of Pakistan. A panel of 41 life and non-life conventional and Islamic (Takaful) insurance companies has been selected for the study period of 2001-2015. The Hausman specification test and Breusch, & Pagan Lagrange Multiplier Test proved that fixed effects and pooled OLS models are the most appropriate models for this study. The findings of both models reveal that (e.g.; size, tangibility, managerial efficiency and economic growth) have positive and statistically significantly influence on Profitability of the insurance sector. However, financial leverage and inflation rate have negative but significant effect on Profitability while liquidity and growth opportunity have insignificant effect in both models. Thus, the top- management of insurance sector should give high priority to firm-specific factors (financial leverage, size, tangibility, managerial efficiency) and country-specific (economic growth and inflation rate) to enhance performance of their firms. According to the best knowledge of the researchers, this is the first study that selects the entire insurance sector by using most prominent models (i.e. fixed effect and pooled regression model). Moreover, this study uses micro and macroeconomic factors, which is also very important for corporate managers of other financial sector firms, while making decision about the Profitability and value creation for their shareholders.

Keywords: managerial efficiency, size, leverage, tangibility, inflation, profitability, insurance

Introduction

Financial system provides an adequate structure for surplus and deficit economic units to make financial transaction. Therefore, financial institutions are the engines of the economy, which operate the entire financial system. Institutional insolvency creates a severe situation for economic growth and stability. A well functioning and evolved insurance sector is also imperative for economic growth, national wealth and progress to circulates funds through economic entities (Agiobenebo & zirim, 2002; Charumathi, 2012). Moreover, insurance sector plays vital role in the services industry in developed and developing nations to reduce risk, optimally utilize resources, creates economies of scale and incline liquidity (Haiss & Sumegi, 2008).

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Precise information about Profitability makes the decision makers efficient in their strategies and become capable to change economic resources accordingly (Burja, 2011). The proper utilization of fixed and liquid assets influences Profitability because all the shareholders are interested to know about the share prices. Thus, the investors incline the portion of investment in the positive indication of Profitability. However, the insurance sector of Pakistan is facing numerous systematic challenges such as terrorism, earthquake, floods, the energy crisis and instability in politics. As a result, premium of insurance companies and Profitability is falling by 6 percent in 2011 from 2010 (BMA Capital, 2011). Factors of profitability in insurance sector have gained scholarly attention over the last decade. One of the facts is that performance of insurance sector has significance implications on various stakeholders i.e., potential investor, policyholders, employees, investors and public in general.

Statement of Problem

Insurance sector plays pivotal role in the economic growth of a country and provide a financial shield to policyholders or company against losses suffer from unexpected situations (Kihara, 2012). Moreover, it was stated that the protection and economic growth of the country is dependent on the insurance firms; which give risk coverage facility for the stakeholders (Ward & Zurbruegg, 2000). On the other side, the important goal of the firm is to increase the wealth of shareholders, which also includes profit maximization. The annual reports of insurance industry in Pakistan depict fluctuation in earnings because of the economic crisis, war on terror etc. This volatility in profits among insurance companies advocates that firm-level and country-level attributes play vital role in effecting insurance companies' profitability. However, it is important to identify these determinants and how these variables effect insurance industry so to take action that will enhance their performance and stakeholders make better decisions.

Literature shows that in developed countries, most of the research focus is on main determinants of profitability, for instance, the studies of Browne *et al.* (2003) and Greene & Segal (2004) from U.S, Burca & Patrîncea (2014) in Romania and Kozak (2015) in Europe. However, in developing countries like Pakistan, Ahmed *et al.* (2011), Malik (2011), and Sumerial & Bilal (2013) have conducted studies on firm level attributes of profitability by leaving the inclusion of macroeconomic variables. Thus, this study aims to fill an essential gap to some extent by evaluating important firm and country-level determinants of profitability in the insurance sector of Pakistan. At last, this study is carried out because the macroeconomic indicators are the probable research gap of the study (Sumerial & Bilal, 2013).

Literature Review

In this part, the researchers evaluate the most relevant literature on micro and macroeconomic factors of Profitability financial performance of insurance companies are as follows. Adams and Buckle (2003) synchronize that high borrowed and less liquid Bermuda insurance companies have better performance, however performance is directly associated with underwriting risk but scope of activities and size are not important variables in this study. Mark *et al.* (2003) identify that portfolio income on bonds and disposable personal income per capita are directly linked and unanticipated inflation is inversely associated with performance of US life insurance companies. Greene & Segal (2004) evaluate the relationship of cost inefficient and Profitability in the U.S life Insurance sector. The results depict that cost inefficiency is inversely linked to Profitability (ROA). Furthermore, it is found from the analysis that shareholder companies are more efficient and profitable than mutual companies of the U.S. Hrechaniuk *et al.* (2007) have examined the performance of the Lithuanian, Ukrainian and Spanish insurance firms at various periods. The study results reveal that there are systematic differences across aforementioned countries. Ahmed *et al.* (2011), select firm-level determinants of performance in life insurance sector of Pakistan during the study period of 2001-2007 by using panel data technique. They explain that firm specific such as size, leverage and business risk are the significant variables of Performance, however tangibility, growth, liquidity and age of the firm have not significantly influence on performance of life insurance companies.

Malik (2011) examines firm-specific determinants of Profitability of 35 listed insurance companies of Pakistan during the period 2005-2009. Moreover, the findings of the study depict that size, volume of capital is positively related to Profitability, and there is no association of age and Profitability of the company. On the other hand, loss ratio and debt ratio have showed inverse but significant association with Profitability. Doumpos *et al.* (2012) study 2176 property and casualty insurance firms provide services in 91 countries between 2005 and 2009. The researchers evaluate firm-level and country-level factors that affect the performance of non-life insurance firms. Furthermore, the findings conclude that higher GDP growth, lower income inequality, lower inflation rate and more developed stock markets, enhance the financial performance of property and casualty insurance companies. Godfrey (2012), identify macroeconomic factors in Kenya, he finds that currency exchange, growth rate, quarter GDP, inflation rate and interest rate have a positive influence on non-banking financial performance. Sumeria & Bilal (2013) investigate internal factors of Profitability in the insurance industry by selecting 31 insurance firms during the period 2006-2011. The results of the fixed effects model show

that size is positive, while age, leverage and risk are inverse but significant determinants of Profitability in the insurance sector of Pakistan.

Burca & Batrinca (2014) investigate parameters of 21 insurance firms operating in Romania during the study period of 2008-2012. The proxies of performance, such as return on total assets have used by applying panel data technique. The results verify that company size, financial leverage, growth of gross written premiums, underwriting risk, solvency ratio and risk retention ratio are the factor of Profitability in the Romanian insurance market. Gebremariyam (2014) identifies the significant determinants of profitability i.e. firm size, the tangibility of asset, firm growth and, managerial efficiency furthermore, these variables are positively related to the Profitability of the insurance sector. On the other hand, financial leverage and loss ratio are inverse but statistically significantly associated with Profitability. However, liquidity inflation rate and economic growth are insignificant determinants of Profitability in this study. Pervan (2014) findings suggest that claim ratio, the inflation rate and expense ratio have negative but statistically significant affect profitability. However, GDP is the positive determinants of Profitability in the study. Gebru (2015) examines internal and external variables of profitability in nine Ethiopian insurance companies during the study period of 2005-2014 by employing random effect model. He concludes that tangibility of assets, premium growth, claim ratio, volume of capital and real GDP are most prominent determinants of profitability. Moreover, he finds that volume of capital, the tangibility of assets, premium growth are significant positive and real GDP and claim ratio are significant negative parameters of Profitability. On the other hand, inflation and liquidity are not significant in the study.

Kozak (2015) has evaluated the main parameters of profitability and cost efficiency of non-life insurance companies during the period of financial integration with the European market. The outcomes of the study depict that total gross written premium; the market share of foreign-owned companies and the growth of GDP have positively affected the Profitability and cost efficiency of non-life insurance firms. Moreover, Profitability is inversely affected by the level of the company's operating costs. Hence, the number of insurance classes offered by the company and the share of motor insurance in the company portfolio has also negatively associated with Profitability. Hussain (2015) evaluates firm specific and systematic factors in insurance sector of Pakistan in the study period of 2006-2011 by selecting a large sample of 39 firms. The findings of the study reveal that macro factors like macroeconomic environment, equity market condition and inflation rate have direct and significant affect on the performance of insurance sector. The significance and relationship of determinants are varying across the Takaful, life and non-life insurance sector. Moreover, size, financial leverage and underwriting risk have

inverse relationship to profitability in life insurance sector. On the other hand, past profitability, risk, inflation rate and macro factors are insignificant. The significant and negative determinants of non-life insurance sector are leverage, risk and working capital management while “past profitability, financial soundness, growth opportunities, diversification, equity market”, and systematic variables like inflation have positive and significant influence on profitability. In addition, size and working capital management is insignificant factor of profitability in non-life insurance sector. For Takaful industry, firm level factors (i.e. firm size, financial soundness, growth opportunities and under writing risk) have negative but significant affect on profitability, while “financial leverage, diversification and working capital management” have positive and significant impact on profitability.

Choice and Discussion of variables

The detail explanation of all micro and macroeconomic variables and their association with Profitability is as below: The dependent variable profitability is used as proxy by Gebru (2015), Hussain (2015), Sumeria & Bilal (2013).

1. Leverage is measured as core and significant determinants of Profitability in prior studies therefore Ahmed *et al.* (2011) calculates Profitability as total debt divided by total assets, however, Sumeria & Bilal (2013) and Hussain (2015) measure it by debt ratio. Thus, we also use a proxy of debt ratio for this study. In the literature, the negative relationship of debt ratio (Leverage) and Profitability is found in most of the studies like Malik (2011).
2. Liquidity is an imperative parameter that affects Profitability of the company, it is mostly calculated through quick or current, ratio. Thus, we use a proxy of current ratio is congruent with prior studies (Ahmad *et al.*, 2011; Sumeria & Bilal, 2013). In most of the studies, the negative association has been found between liquidity and Profitability.
3. Size of the firm is a significant positive factor of Profitability in the literature thus; the proxy use of this study is the natural log of total assets, which is also employed by many research studies such as Malik (2011), Gebremariam (2014) and Hussain (2015).
4. Tangibility of the firm is another variable of Profitability, which is calculated as fixed asset divided by total assets. The positive association of tangibility and Profitability is forecasted, which is in line with the study of Malik (2011).
5. Growth opportunity is also considered as a factor of profitability in the prior literature. Moreover, the proxy for the current study is the sales growth to total asset growth, which is also empirically investigated by Sumeria & Bilal (2013). The positive relationship of Growth opportunity and profitably is expected in this study, which is also in line with the findings of Gebru (2015) and Hussain (2015).
6. Managerial Efficiency: the ratio of operating expense to operating income is used to calculate managerial efficiency, higher the ratio lowers the managerial efficiency of the firm. Managerial Efficiency = Operating expense divided by operating income. The positive relationship of managerial efficiency and Profitability is expected, which is congruent with the study of Gebremariam (2014).

7. Inflation rate is macro- economic factor of Profitability in the insurance sector of Pakistan. The annual percentage changes in the consumer price index (CPI) are used by Hussain (2015) and Gebru (2015).
8. Economic growth is another country-level determinant of profitability in the insurance sector; therefore, increase in GDP, measured as the final output of goods and services (Gebru, 2015), is taken as the proxy of economic growth.

Data and Research Methodology

This study is secondary in nature, which mainly focuses on the examination of micro and macroeconomic determinants that impel financial performance of the Pakistani Insurance industry. Moreover, a convenient sample of 41 insurance companies (including life and non-life insurance) has been chosen from total population of 50 insurance companies. The study excludes some companies due to the unavailability of the data defacement. On the other side, few firms have not fallen into the group to fulfill the total length of period. Therefore, this study also includes Takaful companies that started their operation in 2006, thus the length of period is from 2001-2015. As a result, financial data from insurance companies are extracted from State Bank of Pakistan “Balance Sheet analysis (2006-2011) and (2011-2015) and IAP’s, however, economic data has been collected from State Bank of Pakistan and World Bank websites respectively.

Table 1: Diagnostic Testing and Models Specification

Test normality Data	Shapiro-Wilk test	(P-value is greater than 0.05) shows that the distribution is normal.
Heteroskedasticity Test	Breusch-Pagan / Cook-Weisberg test	The result is found P-value is 0.5923, which is greater than 0.05, therefore, this model does not face any heteroskedasticity problem.
Testing for Multicollinearity	Variance Inflation Factor (VIF) and Tolerance (TOL)	Value of VIF is less than 10 and tolerance (1/TOL) is less than 1 indicates that the data is free of multicollinearity
Model Specification between Fixed effects and Random effects	Hausman specification test	The Hausman’s specification test presents significant results because the model has the value of $p=0.0000$ ($P<0.05$), then it is more suitable to employ fixed effects model instead of the random effects model
Model specification between Random effects and Pooled OLS	Breusch-Pagan LaGrange Multiplier (LM) test	The insignificant result ($\text{Prob}>\chi^2=0.1241$) conforms pooled regression model for the study

The current study uses panel data, which encompass both cross-section and time series data. Panel data analysis is for the purpose of economic associations between the factors with the assistance of panel data models shaped by using cross-sectional data, which have a time dimension. Before executing regression model, it might be considered

that there are four assumptions in undertaking the model one of them is normality test (Gujarati, 1995). The basic assumption of data analysis is normality, which is tested through Shapiro-Wilk test (see table, 1) and histogram also confirm that residuals are normally distributed around its mean of zero, its shape is like bell. Moreover, Hair *et al.* (2006) states that most suitable test for normality is Shapiro-Wilk test. As a result, the higher p-value ($P > 0.05$) shows significant result, which gives evidence that the distribution is normal. In addition, this model has not encompassed any heteroskedasticity problem because Breusch-Pagan / Cook-Weisberg test found that P-value is 0.5923. Which is insignificant, however correlation analysis also finds fairly small co-relation among variables. On the other hand, multicollinearity arises, when two variables have high correlation i.e. ($r = 0.9$ or above), then correlation could be found between variables (Pallant, 2005). As a result, there is no such high correlation between independent variables. Therefore, variance inflation factor (VIF) and tolerance (TOL) are widely used for multicollinearity and co-linearity, higher value of $VIF > 10$ and less value than 10 TOL represent multicollinearity and co-linearity (Hair *et al.* 2006). So the following results identify that there are no such problems like co-linearity and multicollinearity.

Table 2: *Multicollinearity Statistics*

Variable	VIF	1/VIF	Variable	VIF	1/VIF
Financial Leverage	1.56	0.6410	Growth opportunity	1.23	0.8131
Liquidity of the firm	1.71	0.5847	Managerial efficiency	1.51	0.6622
Size of the firm	1.37	0.7299	Inflation rate	1.12	0.8928
Tangibility of assets	1.55	0.6451	Economic Growth	1.55	0.6451
Mean VIF	1.45				

Source: Output of STATA software

Table 3 *Pearson Correlation matrix for Insurance companies*

	Prof	F.Lev	Li.Q	Size	Tang	Grt.R	M.E	Inf.R	E.G
Prof	1.00								
F. Lev	-0.24	1.00							
Li.Q	-0.48	-0.27	1.00						
Size	0.05	-0.44	0.32	1.00					
Tang	0.58	-0.69	-0.51	0.47	1.00				
Grt. R	0.46	0.04	-0.66	0.08	-0.05	1.00			
M.E	0.24	0.67	0.30	0.64	0.07	0.08	1.00		
Inf.R	-0.05	-0.08	0.08	0.08	0.04	0.04	0.08	1.00	
E.G	0.03	-0.05	-0.06	0.04	0.03	0.03	0.06	0.05	1.00

Source: Stata software outcomes data from Annual reports of insurance companies, State Bank of Pakistan and World Bank

As the table 3 depicts correlation matrix which demonstrate that in the panel data there is no serious problem of multicollinearity because all the coefficient values of the

variables are less than 0.8(Gujarati, 2003; Cooper & Schindler, 2006). Moreover, the Profitability is inversely associated to debt ratio (Lev), Liquidity, and Inflation rate with the coefficient value of -0.2419, and -0.04586, respectively. Moreover, size of the firm, tangibility of assets, growth opportunity, managerial efficiency and economic growth is positively associated to Profitability (ROA) of insurance sector of Pakistan, however the coefficient value of aforementioned variables are 0.0543, 0.5834, 0.4543, 0.23562 and 0.0458, respectively. The inverse relations of the above variables conclude that increase in these variable decreases the Profitability of the insurance sector. On the other hand, positive relationship of variables (i.e. size of the firm, tangibility of assets, growth opportunity, managerial efficiency and economic growth), illustrate that incline in these variables enhances the performance (ROA) of insurance industry of Pakistan.

Different methods in econometric for the treatment of panel data have been used, but widely use technique is fixed effects model, random effects model and Pooled OLS model. Hence, for the selection of most appropriate model for the current data, we run two tests (e.g., Hausman's specification test and Breusch and Pagan Lagrange Multiplier test). The Hausman's specification test presents significant results ($P < 0.05$), then it is more suitable to employ fixed effects model instead of the random effects model. On the other hand, Breusch and Pagan Lagrange Multiplier Test selects most reliable technique between random effect, and pooled regression model. Hence, the insignificant result ($\text{Prob} > \chi^2 = 0.1241$), conforms pooled regression model for the study.

The following form of regression model has been chosen for the study

$$Y_{it} = \alpha + \beta X_{it} + \mu_{it}$$

Y is the dependent variable (Profitability). α = constant. X is an independent variable. i = firm and t = time with μ = error term.

Further moreover, the dependent variable is a Profitability (prof) and independent variables are financial leverage (F.L), liquidity (LQ), size (SZ), tangibility (Tan), growth opportunity (Gwt), managerial efficiency (M.E), Inflation rate (Inf. R), and Eco. Growth rate (GDP rate). In fixed effects model slope coefficient are constant, however intercept varies across the cross sectional unit in panel data. On the other side, random effects model treats both slope coefficient and cross-sectional as well, both units are varying in the panel. Fixed effects are constant across individuals and random effects vary, it also presents individual effect of the firms' Profitability. However, pooled OLS model (also known as constant coefficient method), which assume the intercept (α is same for all cross section i.e. firms) (Asteriou & Hall, 2007).

Model-1

$$\text{Profit} = \beta_0 + \beta_1 F.\text{Lev}_{it} + \beta_2 LQ_{it} + \beta_3 S_{it} + \beta_4 \text{Tang}_{it} + \beta_5 \text{Gr}t.R_{it} + \beta_6 M.E_{it} + \beta_7 \text{Inf}.R_{it} + \beta_8 E.G_{it} + \varepsilon_{it} \dots (1)$$

Model- 2

$$\text{Profit} = \beta_0 + \beta_1 F.\text{Lev}_{it} + \beta_2 Li.Q_{it} + \beta_3 S_{it} + \beta_4 \text{Tang}_{it} + 5 \text{Gr}t.R_{it} + \beta_6 M.E_{it} + \beta_7 \text{Inf}.R_{it} + \beta_8 E.G_{it} + u_{it} \dots (2)$$

Model-3

$$\text{Profit} = \beta_0 + \beta_1 F.\text{Lev}_{it} + \beta_2 Li.Q_{it} + \beta_3 S_{it} + \beta_4 \text{Tang}_{it} + \beta_5 \text{Gr}t.R_{it} + \beta_6 M.E_{it} + \beta_7 \text{Inf}.R_{it} + \beta_8 E.G_{it} + u_{it} \dots (3)$$

Table 4: *Hausman Specification Test*

Variables	Fixed	Random	Difference
F.Levit	-0.5719	0.1904	-0.3815
Li.Qit	-1.4567	-0.37543	-1.08127
Sizeit	17.3319	7.8474	9.4845
Tangit	0.312983	0.16738	0.41141
Gr}t.Rit	0.1707	0.1273	0.0434
M.Eit	0.23092	0.12591	0.10501
Inf Rit	-0.1684	-0.0158	-0.15255
E.Git	0.32593	0.1214	0.20453

Notes: $\chi^2 = 62.20$, and Prob. $>\chi^2 = 0.0000$

Regression Analysis

Table 4 presents two regression analysis, i.e. pooled OLS and fixed effects model. Moreover, these models show the effects of Micro and Macroeconomic variables on Profitability. However, the Adjusted-R depicts that how much dependent variable is influenced by the explanatory variables in term of percentage. However, the Hausman specification test confirms fixed effects model and Breusch, and Pagan Lagrange Multiplier Test suggests pooled regression model for the current study.

Table 5: *Determinants of Profitability by using Pooled Regression and Fixed Effects Models*

Variables	Pooled Model	t-Value	Fixed effects	t-Value
Financial Leverage	-0.354475	-6.454	-0.163485	-4.14
Liquidity of the firm	-0.0023523	-1.544	-0.00234	-0.015
Size of the firm	0.184359	6.045	0.14956	3.12
Tangibility of assets	0.311543	5.345	0.15654	-2.15
Growth opportunity	0.003544	0.354	0.00746	0.039
Managerial efficiency	0.124594	5.231	0.09485	3.14
Inflation rate	-0.047234	- 4.243	- 0.03485	-2.48
Economic Growth	0.043744	7.274	0.43873	4.535
Constant	-0.13945	-0.294	0.12844	0.56
R-Squared	0.6243		0.8374	
Adjusted R	0.6153		0.82475	

Source: Stata software outcomes data

Results and Discussion

As Hausman’s specification test and Breusch and Pagan Lagrange Multiplier Test suggest that fixed effects and pooled OLS are the most appropriate model for this

study. The table -5 shows in pooled OLS and fixed effects model have six significant variables such as financial leverage, size of the firm, the tangibility of assets, managerial efficiency, inflation rate and economic rate, while only two variables liquidity and growth opportunity are insignificant variables.

Financial leverage is a significant and main factor of Profitability; however inverse association is proved between financial leverage and Profitability across both the models (i.e. Pooled OLS and fixed effects model). Moreover, this study is also congruent with the previous study of Malik (2011), Sumeria & Bilal(2013)and on insurance industry of Pakistan. Hussain (2015) in life insurance sector of Pakistan find negative relationship of financial leverage and profitability. This inverse association depicts that if insurance firms incline their debt portion then their Profitability will be decreased significantly. Insurance companies of Pakistan will have to depend on stock option instead of debt while raising funds for investment. However, this decision creates another challenge for the top-management because of the volatile stock market of Pakistan. Thus, management of insurance sector can only raise funds from retained earnings efficiently and effectively.

Liquidity of the firm has proved as insignificant and an negative factor of insurance sector in Pakistan. This inverse relationship illustrates that those companies have a large portion of liquid assets will be less profitable. High liquidity firms use money in liquid assets like cash, account receivable etc. The financial manager of the insurance sector is reluctant to invest money in projects then the Profitability portion will be decreased, because liquidity and Profitability goes inversely. This result is consistent with the prior studies of Ahmed *et al.* (2011), Sumeria & Bilal (2013), in Pakistani insurance sector. However, Gebru (2015) also finds the insignificant result of liquidity in the Ethiopian insurance sector.

Size of the firm has demonstrated positive and significant relationship with Profitability of insurance companies in Pakistan. As the size of the firm inclines the performance of the firm is also enhanced and firm capture high market share in premiums. Larger firms are more efficient in economies of scale as compared to smaller firms. Thus, this industry has gained momentum after many challenges (natural disaster, war and terror and volatile market etc). Contrary, Hussain (2015) has found negative but significant association of Size and profitability of Takaful industry in Pakistan. on the other side, larger firms show high earnings in the income statement, which also entice various stakeholders to invest in this sector. Gebru (2015) finds same positive relationship of size and Profitability in the Ethiopian insurance sector. Moreover, this

result is also standing in line with the previous studies of Malik (2011), Sumeria & Bilal (2013), in the Pakistani insurance sector.

Tangibility of asset has proved a direct and significant association with Profitability. The result suggests that the larger the size of the company or company with high percentage of fixed assets is more profitable than a company with less fixed assets. The insurance firms which have greater tangibility of assets will be more profitable. As a result, this type of firm will give high dividend to their shareholders. This result is inconsistent with findings studied in Pakistan by Ahmed *et al.* (2011) in life insurance sector. Unlikely, this result gives a positive and significant association of tangibility and Return on assets (ROA), which is consistent with the findings of Gebru (2015).

Growth opportunity is a positive and insignificant factor of insurance sector of Pakistan. This depicts that insurance companies increase their premiums by providing valuable services to diverse stakeholders and growing consistently. However, their growth cannot provide any significant result to the insurance industry. Many systemic factors that create hindrances in this pathway like war and terrorism, flood and earthquake, shaking nature of markets, poverty and higher cost of operation. The current result is inconsistent with the results of Burca & Batrîna (2014). However, this result is stand in line with the previous studies of Ahmed *et al.* (2011), Sumeria & Bilal (2013).

Managerial efficiency is statistically significant and positively associated to Return on assets (ROA). Furthermore, it means that management of operating expenses to income has higher contribution to enhance performance of the Pakistani insurance sector. The management of insurance sector properly utilizes resources and hence creates efficiency in the structure. Managerial efficiency also decline agency problems between principal and agents. Thus, the outcomes are reliable with the expectation of the study. The results are congruent with the findings of Gebremariam (2014).

Inflation rate has negative and statistically significant influence on return on assets (ROA). Moreover, inclining trend of inflation reduces performance of insurance sector, because the higher inflation rate decreases purchasing power of the masses. Hence, minimal numbers of peoples purchase insurance policies because they have to satisfy their basic needs first. Gebru (2015) has proved inflation rate as an insignificant factor in insurance sector in Ethiopia. This result is also consistent with the study of Pervan (2014), while in Pakistani life insurance sector Hussain (2015) find inverse association of inflation rate and profitability.

Economic growth is positively and significantly influence on Profitability of insurance sector of Pakistan. Moreover, GDP rate is an icon of prosperity, as it increases

purchasing power of the masses and hence, business gets insurance policies to cover risk. As a result, this inclined trend of policy sales positively affects Profitability of insurance companies, because it enhance premium of the firm. Thus, our result is in conformity with the previous findings of Pervan (2014) and Kozak (2015).

Conclusion

This study is designed to explain the main determinants of Profitability in the insurance sector of Pakistan. A group of 41, both life and non-life insurance firms were selected for the study period of 2001-2015. Three most prominent panel data techniques (fixed effects, random effects and pooled regression model) are used to investigate the determinants of Profitability. Moreover, Hausman's specification test, Breusch, and Pagan Lagrange Multiplier Test suggest that fixed effects model and pooled OLS model are most appropriate model for the study. The results of both models reveal that the size of the firm, tangibility, managerial efficiency and economic growth are positively and significantly affect on Profitability of insurance sector in Pakistan. However, financial leverage and inflation rate are significantly, but negatively influence on Profitability. While liquidity and growth opportunity are insignificant parameters of Profitability across both models (i.e. Fixed effects and pooled OLS). This study has explained six firm-level and two country-level determinants of insurance sector of Pakistan. The policy makers should use micro-level (Leverage, size of the firm, tangibility, managerial efficiency) and macroeconomic indicators such as inflation rate and economic growth to incline shareholder wealth as well as premiums for the insurance industry. The future studies may include industry level determinants and other macroeconomic variables like corruption-index and exchange rate as well as consider the whole insurance sector in the sample. Moreover, Profitability can be measured by return on equity (ROE), return on sale (ROS) etc.

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