



Determinants of Investment Yield of Insurance Firms in Pakistan

Muhammad Aleem Arshad¹, Muhammad Hanif Akhtar², Muhammad Ramzan Sheikh³, Wajeeha Sheereen⁴

Abstract

Insurance sector stands strategically important in terms of risk management for the economy. Growth of the insurance sector correlates with economic growth of an economy. Investment yield stands among core goals of firms in the market. The study has investigated the determinants of investment yield of insurance companies in Pakistan based on a panel data of 37 insurance firms (life insurance and non-life insurance) listed in Pakistan Stock Exchange (PSX) covering the period from 2015-2019. Specifically, this study examines the effects of financial leverage, gross GDP growth, inflation rate, risk capital management, size of the firm, age of the firm, tangibility and solvency margins on financial performance of firms in the Insurance sector. The data was obtained from financial publications of State Bank of Pakistan (SBP) and Insurance Year Book that was published by Insurance Association of Pakistan (IAP). The findings of pooled ordinary least square (OLS) regression analysis reveal that financial leverage, GDP growth, inflation rate, risk capital management, size of firm, age of the firm and solvency margins are important determinants of investment yield of insurance firms while tangibility is identified as insignificant determinant of investment yield of insurance firms in the country.

Keywords: Pakistan, financial leverage, gross GDP growth, inflation rate, risk capital management, size of firm, age of the firm, tangibility and solvency margin

1. Introduction

Financial sector serves as the backbone of an economy that essentially requires a stable and strong financial system for economic well-being and development. The major concern of any organization is to increase shareholder's wealth and earn profit (Kabajeh et. al, 2012). Deficiency of advance technology, agency conflicts, high inflation, political instability and natural disasters are some of the factors that become hurdle in achieving the objectives of a firm and can badly affect performance. The insurance industry of any state plays a vital role in the economic development (Datu, 2016; Sajid and Ali, 2018). Financial marketplaces and organizations like insurance firms helps to attain stability of financial structure and lead towards financial development but the role of this sector has been sluggish in developing countries. As a developing state, if compared with other Asian countries like Sir Lanka and India, Pakistan has smaller number of insurance firms (SBP, 2005). During the last two decades, insurance companies (both life and non-life) have made remarkable progress not only to create employment opportunities but also improving the way they do business in the economy. The penetration of insurance industry in Pakistan⁵ has been historically low as per statistics available for 2017. The total insurance premium comes up with just 0.7% of Pakistan's GDP which demonstrates very low penetration of insurance market in comparison to India which is 3.5%, Bangladesh 0.9% and Sri Lanka 1.2%. Financial statistics of Pakistan reported that insurance industry of Pakistan observed a decreasing trend from 11.16% in 2018 to 10.95 % in 2019 of the total market. Unfortunately, Pakistani insurance sector has been facing multiple challenges like high inflationary trends, political instability and energy crises that have collaterally affected the performance of insurance companies. Globally, there exists a quantum of research on insurance industry with a limited one in Pakistan. To the best of authors' knowledge, there appears no study which has examined the profitability of insurance firms regarding investment yield in Pakistan.

On the contrast, Pakistani insurance sector has developed and expended its scope and services because number of insurance firms has almost doubled in the last twenty years. Expansion in insurer's products and services provided to clients has increased the competition among insurance companies. The insurance firms have shown large variations in their profitability during the period 2015 to 2019. The fluctuations in profitability across insurance firms indicate that determinants play a vital role in the financial performance of the insurance business. The literature reveals that most of the extant research tends to focus on the determinants of profitability of Islamic versus commercial banking industry while the research on insurance sector remains scanty. Hence, the study is an attempt to fill this gap through the research questions that follow:

Q1: What factors tend to determine financial performance of insurance firms in Pakistan?

Q2: What is the relative contribution of these factors towards financial performance of insurance firms?

2. Review of Assorted studies

Profitability ratios are the core indicators to measure the firm's efficiency (Kabajeh et al., 2012). Malik (2011) explored that financial performance can be measured through many ways such as return on equity (ROE), return on invested capital

¹ Assistant Professor of Economic, Government Graduate College of Science, Multan, Pakistan, aleemchudary@gmail.com

² Professor and Director, Meezan Centre of Islamic Finance (MCIF), Department of Commerce, Bahauddin Zakariya University, Multan, Pakistan, haneefakhtar@bzu.edu.pk

³ Associate Professor of Economics, School of Economics, Bahauddin Zakariya University, Multan, Pakistan

⁴ Department of Commerce, Bahauddin Zakariya University, Multan, Pakistan, Wajeehasheereen587@gmail.com

⁵ Insurance penetration is used as an indicator of insurance sector development within a country and calculated as ratio of total insurance premium to GDP in a given year.

(ROIC) and return on assets (ROA) but ROA is better to measure firm's profitability. Relevant literature provides the previous studies related to insurer's performance. For instance, Al-Shami (2008) identified the determinants of profitability of insurance companies in UAE during the period 2004 to 2007. The findings indicated that size and the volume of capital were positively related with financial performance while age of the company has no effect on profitability.

Ahmad.N, Ahmad.Z and Ahmad.I (2010) investigated the effect of firm level characteristics on capital structure of Pakistani life insurance firms. The study used leverage as dependent variable. Using the OLS regression model, it emerged that size, risk, profitability, age and liquidity were the chief determinants of capital structure. Afza and Asghar (2012) investigated to determine the performance of general insurers in Pakistan over the period 2004 to 2009. The study used ROA as a dependent variable; outcomes showed that investment, size, past performance had a positive while risk and leverage had negative effect on the performance of general insurers.

Wani and Dar (2015) conducted a study to investigate the relationship between financial risk and financial performance of insurance companies in India. Using multiple regression model, the results of this study revealed that there is a significant relationship between solvency risk, capital management risk, volume of capital, liquidity risk and size of the company and ROA. Whereas, underwriting risk has insignificant relationship with ROA. Simon (2016) determined the factors affecting financial performance in Ethiopia by selecting nine insurance firms for the period of 2005 to 2012. Using ROA as dependent variable, the study concluded that liquidity ratio, leverage ratio, company size, management competence index and firm growth are the influential variable of profitability. While, loss ratio and company age had insignificant impact on the financial performance of Ethiopian insurance companies.

Cekrezi (2015) aimed to explore the factors of profitability of five Albanian insurance companies for the period of 2008 to 2013. Outcomes revealed that leverage, tangibility and risk have significant impact on ROA. Nalimae et al., (2016) sought to establish the influence of firm characteristics of capital adequacy, risk asset quality, size of firm and claims experience on revenue efficiency of twenty-seven insurance companies that was in operation for the period of 2008 to 2017 of insurance firms in Kenya. The study adopted a positivism research philosophy and concluded that all explanatory variables have significant effect on revenue efficiency except claims experience and risk has insignificant effect on revenue efficiency.

Ajao and Ogierakhi (2018) explained the correlation among size of firm, age of the firm and rate of GDP with return on assets of insurance companies in Nigeria. The author revealed that size of firm, age of the firm and rate of GDP was positive linked with return on assets of insurance companies in Nigeria. The study also revealed that uncontrolled size of firm may generate diseconomies.

Table 1: An overview of the studies with variables and their relationship

Variables	Authors	Relationship
Age of firm	Afza and Asghar (2012), Derbali (2014), Ajao and Ogierakhi (2018), Fali et al. (2020).	Positive and significant
	Derbali and Jamel (2018)	Negative and significant
Leverage	Ajao and Ogierakhi (2018), Shawar and Siddique (2019)	Positive and significant
	Afza and Asghar (2012)	Negative and significant
GDP Growth	Demis (2016), Asrat and Tesfahun (2016), Deyganto and Alemu (2019)	Positive and significant
	Hadush et al. (2015), Datu (2016).	Negative and significant
Inflation	Datu (2016), Deyganto and Alemu (2019)	Positive and significant
	Sufian and Chong (2008).	Negative and significant
Risk capital management	Wani and Dar (2015).	Positive and significant
	Sufian and Chong (2008), Wani and Dar (2015), Derbali and Jamel (2018)	Negative and significant
Size of the firm	Malik (2011), Cekrezi (2015), Ajao and Ogierakhi (2018),.. Shawar and Siddique (2019).	Positive and significant
	Derbali1 and Jamel (2018) Derbali (2014), Arshad et al. (2016), Mazviona et al. (2017).	Negative and significant
Tangibility	Daniel and Tilahun (2013), Cekrezi (2015).	Positive and significant
	Boadi et al. (2013), Ajao and Ogierakhi (2018).	Negative and significant
Solvency margin	Demis (2016), Derbali1 and Jamel (2018).	Positive and significant
	Wani and Dar (2015), Suyehli (2015), Asrat and Tesfahun (2016).	Negative and significant

Ishtiaq et al. (2019) researched to analyze the internal and external factors that affect the profitability of the Pakistani life insurance sector. Financial performance was measured through profitability and denoted by ROA. While, liquidity, tangibility, equity ratio (investment leverage), debt to equity ratio, size, insurance leverage, premium growth, underwriting

risk, inflation, capital adequacy ratio, market share and GDP were explanatory factors. The sample size included the sample of ten years from 2008-2017 for both public and private insurance companies. The research concluded that tangibility, GDP and growth were negatively associated with profitability.

Fali et al. (2020) explored the effect of insurance-specific risks on profitability on Nigerian insurance firms. They used 19 Nigerian listed insurance firms covering period of 10 years from 2009 to 2018 to attain the desired research objectives. The study used two controlling variables such as leverage (LEV) and firm age (FAGE). Whereas, re-insurance risk (RIR), technical provisions risk (TPR) and underwriting risk (UR) were taken as independent variables proxied by net profit margin (NPM). The outcomes revealed that re-insurance risks, underwriting risks and technical provisions have negative impact on profitability.

Abdeljawad et al. (2020) examined the determinants of profitability of insurance companies in Palestine over the years 2006 to 2018 and found that size, growth, liquidity; motor claims are the main determinants of profitability.

Sugiharto (2022) highlighted the relationship among micro and macroeconomic indicators and financial performance of life insurance firms in Indonesia. The author collected the data of 30 insurance firms from 2011-2018. The study employed panel data regression analysis to estimate the correlation among variables. The study revealed that current and expense ratios had negatively affected the performance of insurance firms followed by economic conditions. Inflation and interest rates had no significant impact on the performance of life insurance firms.

3. Research Methods

The current study has employed the Pooled Ordinary Least Square (POLS) regression analysis to estimate financial performance of insurance firms in Pakistan. The theoretical model envelops the return on assets (ROA) as the dependent variable as a proxy of financial performance while the independent variables were financial leverage, gross GDP growth, inflation rate, risk capital management, size of firm, age of the firm, tangibility and solvency margin on financial performance.

3.1. Sample and Data collection

Currently, there are total forty one insurance firms listed on Pakistan Stock Exchange (PSX). However, the present research focuses only thirty seven conventional insurance firms including thirty non-life and seven life insurance firms from 2015 to 2019 based on the accessibility and availability of consistent data for the whole period of analysis. For this purpose, study used secondary data collected from financial sector analysis report of 2015-19 issued by the "State Bank of Pakistan (SBP)" and "Insurance Year Book" which is published by Insurance Association of Pakistan (IAP).

3.2. The Model

The econometric model below is used to estimate the financial performance of insurance companies in Pakistan.

$$ROA_{i,t} = \alpha + \beta_1 (AGE_{i,t}) + \beta_2 (FL_{i,t}) + \beta_3 (GDPG_{i,t}) + \beta_4 (INF_{i,t}) + \beta_5 (RCM_{i,t}) + \beta_6 (SIZE_{i,t}) + \beta_7 (TANG_{i,t}) + \beta_8 (SOLMR_{i,t}) + \epsilon \quad (1)$$

Where equation 1 contains:

α = constant of the parameters, β = coefficients i = Entities, t = time, ϵ = error term

The table-2 below provides details about the description of variables used in the study as an explanation of the proxies used for each of the variables. The choice of the variables used in the study is based on extant literature on the determinants of profitability of insurance firms worldwide.

Table 2: Description of the Variables.

Variables	Description
ROA	Return on assets (income after interest and tax to total assets)
AGE	Company's age (Total number of operating years of the firms).
FL	Financial leverage (Total debt divided by total equity).
GDPG	GDP growth (Annual GDP growth rate).
INF	Inflation (Measured by consumer price index).
RCM	Risk capital management (Capital and reserves divided by total assets).
SIZE	Size of the firm is proxied by total assets.
TANG	Tangibility (Fixed assets divided by total assets).
SOLMR	Solvency margin (Net assets divided by net written premium).

4. Results and analysis

Results of the study are presented in this section after a brief discussion on the descriptive and correlation analyses.

4.1. Descriptive statistics

The descriptive statistics in terms of mean and standard deviation are produced below.

Table 3: Descriptive Statistics

Variables	Mean	Standard Deviation
ROA	0.03	0.09
AGE	45.27	26.45
FL	1.13	1.96
GDPG	4.54	1.80
INF	0.04	0.01
RCM	0.47	0.45
SIZE	6.45	0.53
TANG	0.09	0.18
SOLMR	6.93	59.01

Source: Authors' calculations

In table 3 the descriptive statistics provides the mean, maximum, minimum and standard deviation for each variable of Pakistani insurers during 2015-2019. Based on table 4.1, mean value of financial performance (ROA) is 0.03 and the value of standard deviation is 0.09. The mean value of company age is 45.27 and shows large variations because the value of standard deviation is 26.45. The mean value of financial leverage is 1.13 and value of standard deviation is 1.96 that shows some moderate variations across the sample companies. The mean value of GDP growth is 4.54 and indicates some moderate variations because the value of standard deviation is 1.80. The mean value of inflation is 0.04 which shows that inflation rate remains stable during the study period in Pakistan because the value of standard deviation of is 0.01. The mean value of risk capital management is 0.47 and the value of standard deviation is 0.45. The mean value of size of firm is 6.45 and the small variations in the company size of insurance firms may lead towards the significant results because the value of standard deviation is 0.53. The mean value of tangibility is 0.09 and the value of standard deviation is 0.18. Finally, the mean value of solvency margin is 6.93 which shows that there are very large variations as compared to other variables because the value of standard deviation is 59.01 which is very high.

4.2. Correlation analyses

The correlation results on the variables used in the study are produced in Table 4 below. This reflects the nature of the relationship of ROA with all independent variables. Firms' age, inflation and tangibility shows a negative and very weak relationship with ROA. GDPG indicates a weak but positive relationship with ROA. The variable of RCM and SOLMR shows reflect a moderately high but negative relationship with the dependent variable of ROA. Similarly, FL and SIZE reveals a positive relationship with ROA. The analyses further reveal that the independent variables are positively vis-à-vis negatively correlated with each other.

Table 4: Correlation Analysis of Selected Variables

Correlation	ROA	AGE	FL	GDPG	INF	RCM	SIZE	TANG	SOLMR
ROA	1								
AGE	-0.05	1							
FL	0.48	-0.08	1						
GDPG	0.04	-0.01	-0.03	1					
INF	-0.08	0.01	0.00	-0.92	1				
RCM	-0.69	0.04	-0.79	0.03	-0.01	1			
SIZE	0.38	0.13	0.22	-0.04	0.03	-0.49	1		
TANG	-0.03	0.18	-0.10	-0.03	0.03	0.13	-0.10	1	
SOLMR	-0.54	0.11	-0.06	-0.07	0.08	0.13	-0.16	-0.06	1

Source: Authors' calculations

4.3. Pooled OLS Regression Analysis

The outcome of pooled OLS regression analysis is presented below to ascertain the impact of perceived factors on the dependent variable; ROA, a proxy for the profitability of insurance firms in Pakistan.

Table 5 has manifested the results on financial leverage, GDP growth, inflation, risk capital management, size of firm and solvency margin are negatively related with profitability of insurance firms. Firm age and tangibility are positively linked with financial performance. R square is 0.78 which indicates that 78% variation in the dependent variable (ROA) is explained by independent variables used in this study while the remaining 22% of variations are explained by the other

variables. F-statistics is a test of significance and its value is 63.93 which is greater than its Prob (F-statistic) value of 0.0000.

Age of firms positively affects the financial performance of the insurance firms. This reveals that as the firms tend to grow older, their accumulated experience in terms of approaching the customers, style of doing business and learning curve jointly help towards becoming profitable. Our results are in line with those by Malik (2011) and Derbali & Jamel (2018). Financial leverage has depicted a negative connection with the financial performance. Regression coefficient value of FL at -5.5261 indicates that 1% increase in FL leads to a decrease of -5.53% in profitability of the insurance firms in Pakistan. The more debt capital available to the firms, the greater cost of the capital firm will have to pay. This will eventually lead to the higher cost of debt and lower the profitability. The result is consistent with those by Afza and Asghar (2012). However, the result is inconsistent with Ajao and Ogierakhi (2018) and Shawar and Siddique (2019).

Table 5: Pooled OLS Estimates on profitability determinants of Insurance Firms

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.2077	0.0154	13.4699	0.0000
AGE	0.2640	0.0219	12.0278	0.0000
FL	-5.5261	1.4331	-3.8559	0.0002
GDPG	-5.3906	2.6287	-2.0507	0.0422
INF	-9.1623	3.4177	-2.6808	0.0082
RCM	-14.4631	0.9769	-14.8055	0.0000
SIZE	-7.9495	1.6955	-4.6887	0.0000
TANG	2.2071	1.6599	1.3297	0.1858
SOLMR	-6.8154	0.2472	-27.5725	0.0000
Diagnostic Statistics				
R-squared	0.78	F-statistic		63.93
Adjusted R-squared	0.77	Prob (F-statistic)		0.0000

The GDP growth revealed negative correlation with profitability of insurance firms in Pakistan. Regression coefficient value of GDPG at -5.3901 indicates that 1% increase in GDPG leads to a decrease of 5.39% in profitability of the insurance firms in the country. The relationship is justified by the fact that high economic growth may result in escalated demand of insurance services that may increase operational costs and may undermine financial performance of these firms (Datu, 2016; Ali et al., 2021). It could also be an outcome of the existing low growth rates of the economy that might have served as a barrier in profitability of firms in the insurance sector. However, these results are on the contrast to Hadush et al. (2015).

Inflation rates (INF) appear to negatively affect the profitability. Regression coefficient value of INF at -9.1622 indicates that 1% increase in INF leads to decrease in profitability by 9.16%, a relatively large decrease. This could be interpreted by the notion that high input prices tend to cause a reduced return on assets, i.e. the profitability (Sufian and Chong, 2008). The risk capital management alludes toward a negative association with profitability of firms in the insurance sector of Pakistan. The regression coefficient value of RCM at -14.4631 indicates that 1% increase in RCM lead to decrease of 14.46% in the ROA. High risk emanating from capital management leads to the lower levels of profitability while the results are supported by those of Wani and Dar (2015) and Derbali & Jamel (2018), Nisar et al., (2021).

The size of the firm reveals a negative linkage with the financial performance of the firms. Although the size of the firms has been debated in both ways where a small size firm is in a better position to run its operations efficiently while a large size counterpart is supported on the notion of economies of scale. Mazviona et al. (2017) highlighted the phenomenon that enormous size of firm enhances the operational expenditures that tend to undermine profitability of firms. The findings are supported by Cekrezi (2015) and Afza & Asghar (2012).

Likewise, the solvency margin was negatively associated with ROA, an indicator of profitability. The regression coefficient of SOLMR at -6.8153 indicates that 1% increase in SOLMR lead to decrease of 6.82% in the ROA. High solvency ratio implies that future liabilities of the firms could undermine the profitability drive of the firms. The result is in line with the findings by Demis (2016) and Derbali & Jamel (2018) but inconsistent with those by Suyehli (2015), Asrat and Tesfahun (2016), Sulehri and Ali (2020).

5. Conclusions, policy implications and agenda for the future

The profitable insurance firms are in a better position to contribute in development of the economy. The present research has estimated to gauge the effect of perceived variables on profitability of insurance firms in Pakistan. The return on assets was taken as a dependent variable (measure of profitability) while age, leverage, GDP growth, inflation, risk capital management, size of firm and solvency margin and tangibility were taken as the independent variables. To estimate the economic model, the study has applied a pooled OLS regression analysis. Findings of the study divulge that the ROA is

significantly affected by age, leverage, GDP growth, inflation, risk capital management, size and solvency margins of insurance firms in Pakistan.

The major policy implication is based on the impression that the age of the firms acts as a driving force towards profitability of firms in the country. Secondly, the negative relationship of GDP growth with the profitability alludes towards ensuring high GDP growth in the economy that could support profitability drive of insurance firms in Pakistan. Thirdly, the policy makers in Pakistan ought to control the rates of inflation in the country since it results in high cost of doing business and lower rates of profits. Fourthly, managers of the insurance firms may need to look for optimal levels of financial leverage in order to become profitable. Finally, the managers of the insurance firms may ensure better management of risk capital vis-à-vis solvency margins to achieve the profitability objective. On a positive note, the analysis appears to be useful in identifying the factors which are important for profitability of insurance companies in Pakistan.

This study is limited to only conventional insurance firms in Pakistan, a comparative study could be conducted between the conventional vis-à-vis takaful firms. A separate analysis could also be developed across both the life and non-life insurance sectors. To get more reliable outcomes, future research could also explore the role of additional variables e.g. capital structure, scope of operations and stability of the underwriting operations of insurance firms globally.

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