

Impact of Financial Risks on Financial Performance of Private Life Insurance Companies in India: An Empirical Study

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Abstract

Several financial risks are inherent in the business operations of insurance companies which, if not managed properly, may have an adverse impact on the profitability of these companies. Thus, the aim of the present study is to examine the impact of financial risks on the financial performance of the insurance companies in India taking 23 private insurance companies as a proxy for the insurance sector of the Indian economy. The study took secondary data of insurance companies for the sample period of eight years from 2013-14 to 2020-21 and implemented panel data analysis technique to run regression taking return on assets/return on equity as dependent variables for measuring financial performance and capital management risk, solvency risk, underwriting risk and liquidity risk as independent variables measuring financial risks of insurance companies along with two control variables, namely, size of the company and investment income. The results of the study revealed a clear significant impact of capital management risk on both return on assets and return on equity and a significant impact of underwriting risk and liquidity risk on return on equity. The study could not establish a significant impact of solvency risk on financial performance in contrast to some previous studies. The study purports that insurance companies can enhance their profitability by effectively managing the financial risks in business.

Keywords: Return on Assets, Return on Equity, Panel Data Analysis, Hausman Test

I Introduction

A mature insurance sector is the backbone of any economy. It not only helps mitigate the loss suffered by individuals but also leads to capital formation by providing necessary financial support to the industry in the form of loans, advances, investment in shares and debentures in both public and private sector companies. The insurance industry has been engaged in a continuous updating process that has encouraged the necessary adjustments to adapt to the changing economic climate as well as the rising standards of safety, transparency, and effectiveness that are being expected by financial markets and people (Claudio, 2009). The Indian insurance industry has been gradually increasing its countrywide penetration over the years. Yet it is still far behind many developed countries of the world like the UK, France, Japan, etc. These companies need to expand their reach to customers through innovative products. Investors should be educated and made aware of the need for insurance and the types of products available in the markets and how they can be beneficial for them. Insurance companies while absorbing the losses suffered by individuals in terms of life and property are themselves exposed to many risks like underwriting risk, solvency risk, liquidity risk, capital management risk, etc. The high level of claims against

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the premiums received often leads to huge underwriting losses for these companies. If these risks are not properly managed, they can threaten the viability and existence of the organization. Though the overall shock is absorbed by the investment income earned from investing the premiums received from policies in various securities like shares, bonds and debentures, however, managing the underwriting business well is the key to sustained growth and profitability of these companies.

Financial risk has a direct bearing on the financial performance (FP) of insurance companies. To put it in simple words, financial risk is the risk of not being able to cover the claims expenses demanded by policyholders and the inability to earn enough return on the investments made to cover various costs and provide decent returns to investors. Many insurance businesses are excellent at determining insurance risks, but they struggle to set up systems to control their own operational and business risks. (Kadi, 2003). Managing financial risk involves assessing the risk to which an insurance company is exposed, developing tools for protecting the insurance company from those risks, monitoring risk and mitigating the risk exposure. Managing financial risk judiciously is an important factor contributing to improved financial performance (FP) of the company. Insurance companies can control risks using a variety of strategies. Loss financing, risk mitigation, and loss prevention and control are some of these. (Wani & Dar, 2015).

The financial risk of insurance companies can be measured in terms of risk of not being able to cover the claims expenses i.e. underwriting risk, risk of being able to meet the long term debt obligations i.e. solvency risk and liquidity risk i.e. the risk of being unable to meet short term payment obligations due to lack of convertibility of investment into cash within a short period. The size of a company is also an important factor as larger organizations can absorb risk more effectively as compared to smaller ones. A larger capital base also works as a cushion to protect the insured and promotes financial soundness. The FP, on the other hand, has

been measured in several ways by companies across the globe. The performance of insurance companies can be measured in terms of underwriting income, premium income, investment income or overall profits earned by the organization. However, return on assets (ROA) and return on equity (ROE) are by far the most effective ratios when it comes to measuring the performance and efficiency of insurance companies. Additionally, the return of assets (ROA) ratio is the most widely used ratio for quantifying FP.

The present study is structured in five different sections. Section II gives a brief review of some previous studies relating to the relationship between financial risks and returns in insurance companies. Section III mentions the contribution of the present study. Section IV discusses the data and the research methodology. Section V deliberates the empirical findings. Section VI concludes the study in light of the objective of the research and the results of empirical analysis.

II Review of Literature

Several studies have suggested a link between good risk management and improved FP of companies. Babel & Santomero (1996) in their research divided the financial risks into six major categories, i.e., actuarial risk, systematic risk, credit risk, liquidity risk, operational risk and legal risk. They recognized a variety of motivating grounds for handling financial risk like managerial self-interest, nonlinearity of taxes, cost of financial distress, presence of capital market imperfection, etc. They advised several risk management techniques, viz standards and reports, underwriting authority and limits, investment guidelines and incentive schemes. These techniques help quantify the risk exposure, explaining the procedures to manage and limit these exposures to tolerable levels and encouraging the managers to handle risks in a way that is consistent with the objectives of the company and ensures improved performance.

Muli (2003) explored the management of property risks in Kenya with the help of a case study of the insurance sector. They conducted a questionnaire-based survey of

18 insurance companies from a total of 36. The results revealed that although risk management is consciously present in the Kenyan insurance business, a clear understanding of the discipline in the industry is missing. The engrossment of risk surveyors and managers in risk control and evaluation was not adequate though they had endorsed the necessity of adopting the appropriate risk control techniques. Though the insurers were found to have sufficient information for any risk management activity, there was an absence of a well-organized method of storage and retrieval of the same. Shiu (2004) studied factors of UK general insurance companies' performance during the period 1986-1999 by taking a sample 211 firms and applying the least square regression model and panel data model to estimate the results. He claimed a positive relationship between the performance of insurance companies and interest rate, ROE, liquidity, and solvency margin and a negative relationship between performance and reinsurance dependence and inflation. Risk turned out to be a critical factor having a positive or negative impact on the performance of insurance firms. It was established that whenever insurers encountered poor underwriting results and low interest earning, the performance of whole insurance industry was distressed.

Yusuwan et al. (2008) concentrated on recognizing the level of awareness of risk management regarding risk management practices in the case of construction project companies in Klang Valley, Malaysia. They examined the policies adopted in dealing with risks in a construction project and identified the difficulties and challenges in risk management. They employed a questionnaire survey and interviews to study 27 public and private companies operating in Klang Valley. The results showed that risk management positively contributed to the productivity and FP of these companies. Spric & Sevic (2009) advocated that the theory of risk management if applied in a well-structured way, will protect companies from market shocks, bankruptcy, and financial distress. Malik (2011) explored the determinants of profitability of insurance companies in Pakistan with a sample of 35 listed

life and non-life insurance companies for the period 2005 - 2009. By taking profitability as the dependent variable and the age of the company, size of the company, volume of capital, leverage and loss ratio as independent variables, the regression estimates showed no relationship between profitability and age of the company and a significant positive association between size of the company and profitability. The result also indicated that the volume of capital was significantly and positively related to profitability, however, the loss ratio and leverage ratio were significantly and negatively related to profitability. Almajali et al. (2012) investigated the factors affecting the FP of Jordanian Insurance Companies Listed at the Amman Stock Exchange. They took data of all 25 insurance companies enlisted at Amman Stock Exchange during the period 2002-2007. They considered company Leverage, liquidity, age, size, and company management competence index as independent variables whereas FP measured through return on assets as dependent variable. The results demonstrated that leverage, liquidity, size and management competence index were having a statistically significant and positive effect on the FP of insurance companies but company age has no statistically significant influence on FP.

Charumathi (2012) tried to model the factors affecting the FP of life insurance companies working in India taking the return on asset as the dependent variable and firm-specific features such as leverage, size, premium growth, liquidity, underwriting risk and equity capital as independent variables. The findings of the study revealed that the FP of life insurers is positively and significantly influenced by the size and liquidity but is negatively and significantly affected by leverage, premium growth, and equity capital. However, the study could not establish any relationship between underwriting risk and FP. Sambasivam & Ayele (2013) studied the performance of nine insurance companies in Ethiopia from June 2003 to June 2011 to pin down the factors influencing the profitability of insurance companies and their relationship with profitability. They considered ROA as dependent variables and age,

size, volume of capital, leverage ratio, growth rate, tangibility of assets and liquidity ratio as independent variables. They found a significant relationship between age and ROA as well as size and ROA. A significant and negative relationship between leverage ratio and ROA, a significant positive connection between firm growth and ROA were revealed too. Further, a substantial correlation between volume of capital and ROA, between tangibility of assets and ROA but a negative correlation between liquidity and ROA was revealed. Sumaira & Amjad (2013) demonstrated risk had a negative bearing on the profitability of insurers while Ahmadimousaab et al (2013) found a positive relationship between risk and the structure of the firms.

Boadi et al. (2013) analysed determinants of profitability of insurance firms in Ghana from 2005 to 2010 by taking data from sixteen insurance firms and conducting quantitative research using ordinary least square regression and panel data estimation methods to infer the relationship between ROA and leverage, tangibility, liquidity, growth, size, and risk. The empirical findings validated a positive association between profitability, leverage, and liquidity but a negative linkage between profitability and tangibility. The study proposed to check the relationship between profitability and return on equity ratio as well. Burca & Batrinca (2014) studied the elements of FP in case of Romanian insurance companies by covering a sample of 21 companies for the period 2008 to 2012. They tested 13 explanatory variables viz, financial leverage, company size, age in number of years, growth of gross written premiums, equity, total market share, diversification, underwriting risk, investment ratio, reinsurance dependence, retained risk ratio, solvency margin and growth of GDP per capita. The FP of the insurers was measured with ROA. The findings showed that gross written premiums, financial leverage and underwriting risk hurt ROA. Company size, retained risk ratio, and solvency margin had a positive impact on ROA. Equity, total market share, diversification, investment ratio, age in number of years and growth of real GDP per capita were found to have no significant impact on performance.

Omasete (2014) studied the effect of risk management practices like setting standards of risk, risk assessment, risk mitigation, and risk management and monitoring on the performance of 49 life and general insurance companies in Kenya by collecting both primary and secondary data. The study employed the techniques of content analysis and regression analysis. The study resolved that there is a strong linkage between the adoption of risk management practices and the FP of insurance companies. The study proposed that insurance companies need to adopt a multifaceted approach in their risk management efforts to grasp the full benefits of their risk management programs. According to Berteji & Hammami (2014), liquidity and leverage had no impact on the performance of insurance companies.

Wani & Ahmad (2015) studied the effect of capital management risk, solvency risk, liquidity risk, underwriting risk, size of the company and volume of capital on the FP of eight private sector life insurance companies in India. The study validated that capital management risk, solvency risk, and underwriting risk were the deterrent forces for the FP of life insurance firms, while liquidity risk, company size, and volume of capital variables were the pull factors. Kaya (2015) considered the influence of company-specific elements on the profitability of non-life insurance companies in Turkey for the period 2006 to 2013 taking data of 24 non-life insurers operating in Turkey. The impact of eight explanatory variables viz. size, age, loss ratio, insurance leverage ratio, current ratio, premium growth rate, motor insurance and premium retention ratio, on technical profitability ratio and sales profitability ratio was determined. The findings confirmed that the profitability of non-life insurers was significantly and positively affected by the size and premium growth rate whereas it was significantly and negatively influenced by the age, loss ratio and current ratio. Liu et al. (2016) conducted research the impact of liquidity on the reinsurance of general insurance companies in UK over a sample period of 1994 – 2011. It was discovered that insurers with higher liquidity tended to buy more reinsurance, whereas those with higher reinsurance

dependence tended to keep their liquidity higher. The findings show that the substitution argument is outweighed by the cash-constraint argument. It was affirmed that there is an inverted U-shaped relationship between liquidity and reinsurance. Kokobe & Gemechu (2016) analysed the relationship between risk management techniques (loss prevention and control, loss financing and risk avoidance) and FP of insurance companies (ROE and loss ratios). The findings indicated poor FP of insurance companies along with a general increase in loss ratios. A low positive correlation amid loss prevention and control technique and ROE and a moderate positive correlation amid loss prevention and control technique and loss ratios led to the conclusion that insurers should apply risk management techniques effectively to enhance return on equity and to reduce loss ratios. Mwangi & Iraya (2016) contended leverage had a positive impact but liquidity had no impact on insurance company performance.

Sisay (2017) investigated the effect of financial risk on the performance of insurance companies in Ethiopia with data from seven private life insurance companies over the period 2000 to 2015. The fixed effects model was used to run regression taking ROA as be dependent variable and credit risk, liquidity risk, solvency risk, underwriting risk, reinsurance risk and technical provisions risk as explanatory variables. The results showed the significant negative impact of all risks (except reinsurance risk which turned out to be insignificant) on the performance of insurance companies. Shawar & Siddiqui (2019) reviewed the performance of insurance companies in Pakistan using financial ratios over the period 2008-2017 concentrating mainly on investment income, underwriting profit, and sales profitability. The study suggested that in Pakistan's insurance industry, gross written profit, management expenditures, and interest rates exert significant influence on underwriting profit, while claim, reinsurance, leverage, size, and real gross domestic product have little bearing. Further, the study exhibited that claim, reinsurance leverage, interest rate and real gross domestic product are not significantly related to investment income, while the gross written

profit, management expenditure and size positively affect investment income. Also, sales profitability is not affected by management expenditure, interest rate, claim and size but is significantly influenced by gross written profit, leverage, and real gross domestic product. Ukpong & Folarin (2020) assessed the financial risks that the Nigerian life insurance market faces and how those risks relate to the company's value. The findings of the study showed that the linkage between liquidity risk and return on equity is negligible.

As is evident, insurance companies serve the larger objective of mitigating the effects of life and property on individuals in a society. Their risk exposure is quite high because of the very nature of their business. Thus, there is a greater need for risk management in the case of these companies. All the studies point out that insurance companies can best enhance the performance of business following practices of risk management be it liquidity risk, underwriting risk, solvency risk or capital market risk.

As the review of literature reveals that contradictory empirical evidence exists about the linkage between financial risks and FP of insurance companies i.e. the impact of financial risks on FP has been determined to be either positive, negative, or negligible, the present study aims to further the consensus-building process by examining the relationship between financial risks and FP of private life insurance companies in India. The contradictory results of previous studies provided much-needed impetus to explore further the relationship between financial risks and FP of insurance companies with the latest data of 23 private life insurance companies operating in India to reach a consensus.

Against this backdrop, the present study aims to find out the impact of financial risks on the FP of insurance companies in India by taking private insurance companies as representatives of the insurance sector of India. To examine the said relationship, the following research hypothesis is developed in its alternate form:

H_a: Financial risks exert a significant impact on the FP insurance companies.

III. Contribution of Research

This area of research, though crucial for the successful performance of insurance companies, is still under-explored and the related existing literature is sparse. Only a few studies have been conducted regarding the probable influence of financial risks on the FP of insurers across the globe. To the best knowledge of the researchers, none of the previous studies have attempted to analyse the relationship between financial risks and FP of life insurance companies in India, though similar studies have been carried out for the general insurance sector. Thus, the present study is ace of its kind and will support various stakeholders of the life insurance business, namely, investors, regulators, managers, academicians, and future researchers to derive meaningful conclusions from the results of the study as per their stake. Further, the present study will provide an extensive understanding of the research area under consideration and base for further research.

IV. Data and Methodology

Data

The current study is based on secondary data from 23 private insurance companies in India. The data is extracted from the Handbook on Indian Insurance Statistics 2020-21 available on the Insurance Regulatory and Development Authority of India 's official website.

(<https://www.irdai.gov.in/ADMINCMS/cms/Uploadedfiles/Hand%20Book%202019-20.pdf>) The data is taken for the sample period of eight years from 2013-14 to 2020-21. The study included all 23 private life insurance companies in its analysis and the last private life insurance company, Edelweiss Tokio Life Insurance Company, was established in July 2011. Therefore, to analyse more representative data of all 23 companies, this sample period of study is considered. Though the COVID-19 pandemic led to an increase in demand for life insurance products, the impact of the same in data become more evident from the year 2021-22 and not from the year 2020-21 and thus the empirical analysis and the results will not be affected due to pandemic.

Variables Description and Classification

After reviewing the existing literature, the study selected the following variables for the empirical analysis in the study. The variables are classified under the three categories:

Dependent Variables: For finding out the relationship between risk and returns in case of Indian insurance companies, the current study has selected Return on Equity (ROE) and Return on Assets (ROA) as dependent variables of interest. These variables are defined below:

Return on Equity (ROE): Return on Equity is a measure of FP of a company that is computed by dividing the net profits after tax by the equity investments of its shareholders.

Return on Assets (ROA): Return on assets measures the efficiency of a company to generate profits by using its total assets. It is computed by dividing net profits after tax by the total assets of the company.

Independent Variables: The study tries to find out the impact of the following four major types of risks undertaken by insurance companies to earn returns:

Capital Management Risk (CMR): An insurance company need to maintain a statutory minimum level of capital depending upon its size and the inherent risk in its operation. Therefore, there are normally few but large companies in any insurance business. Capital Management Risk is defined as an insurance company's ability to survive the impact of risks it is exposed to by holding sufficient capital. It is calculated as the ratio of the total capital and reserves to the total assets of an insurance company.

Solvency Risk (SR): Solvency refers to the ability of a company to meet its long-term financial commitments on time. The solvency risk is defined as a measure of the risk that an insurance company faces of claims that it cannot absorb. The solvency risk is calculated as ratio of the available solvency margin amount to that of the required solvency margin amount. The higher the ratio, the better it is.

Underwriting Risk (UR): Underwriting risk is defined as the risk that an insurance company will suffer losses due to unanticipated factors beyond the control of companies that were not forecasted at the time when a premium rate was determined. It is calculated as the ratio of net benefits paid over total life insurance premium received.

Liquidity Risk (LR): Liquidity is the ability of an insurance company to pay the benefits owed to policyholders and beneficiaries of insurance contracts on time. Liquidity risk is measured by liquidity ratio i.e., the ratio of current assets over current liabilities.

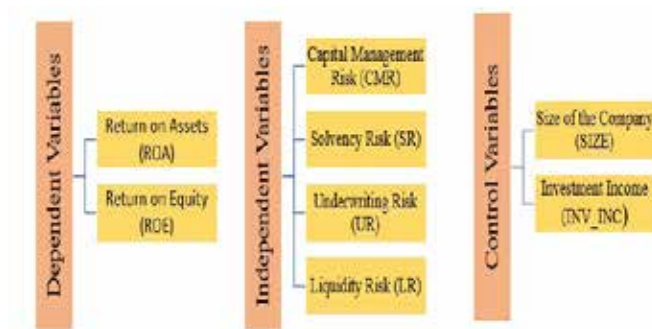
Control Variables: The present study takes the following two variables as control variables to limit their influence on regression results:

Size: The size of the company affects the FP of a company and therefore, is taken as a control variable and is defined as the natural logarithm of the total assets of the insurance company.

Income from Investments (IN_INC): The premium amount collected by a life insurance company is invested in guaranteed or low-risk securities such as stocks, bonds, real estate and money market funds to earn returns. This is taken as a control variable as this is a major source of revenue for a life insurance company.

The figure 1 gives a pictorial representation of all the variables used in the study.

Figure 1: Variables Used in Study



Source: Self-Constructed

Analysis Technique

For examining the relationship between risks and returns in case of Indian insurance companies, the study adopts the technique of regression analysis suitable for panel data under consideration. Taking Return on Equity (ROE) and Return on Assets (ROA) as dependent variables and Capital Management Risk (CMR), Solvency Risk (SR), Underwriting Risk (UR) and Liquidity Risk (LR) as independent variable along with two control variables, namely, Size of company (SIZE) and Income from investments (INV_INC), the following regression equations are built:

$$ROE_{it} = \alpha + \beta_1(CMR)_{it} + \beta_2(SR)_{it} + \beta_3(UR)_{it} + \beta_4(LR)_{it} + \beta_5(SIZE)_{it} + \beta_6(INV_INC)_{it} + \zeta_i + \varepsilon_{it} \quad (1)$$

$$ROA_{it} = \alpha + \beta_1(CMR)_{it} + \beta_2(SR)_{it} + \beta_3(UR)_{it} + \beta_4(LR)_{it} + \beta_5(SIZE)_{it} + \beta_6(INV_INC)_{it} + \zeta_i + \varepsilon_{it} \quad (2)$$

In equation (1) and (2), 'i' is used for insurance companies, 't' is used for year, 'α' is a constant term for the intercept 'β_i's are the coefficients for the independent and control variable, ζ_i is unobserved cross-section heterogeneity and ε_{it} is the random error.

To empirically examine the relationship between risks and returns in case of Indian insurance companies with the help of regression equation (1) and (2), the following procedure of panel data analysis is employed:

1. As a preliminary step, first the descriptive statistics and correlation analysis of all the variables is studied to know the nature of data and possibility of multicollinearity.
2. If correlation analysis shows no signals of multicollinearity, then the three most popular models of panel data analysis, namely, pooled ordinary least squares model (POLSM), Fixed Effects Model (FEM) and Random Effects Model (REM), are run for regression to establish a causal relationship between risks and returns in case of Indian insurance companies.
3. To reach the best-fit model out of POLSM,

FEM and REM, the two post-estimation tests are conducted. The Breusch-Pagan Lagrange Multiplier test (BP-LM test) (1979) is conducted on the results of POLSM to check the existence of panel effects, if any. If the results of BP-LM test fail to establish panel effects, the POLSM is considered as best-fit, otherwise either FEM or REM will be appropriate. To know the more appropriate model between FEM and REM, the Hausman Test (1978) is conducted on the results of REM to validate or negate the null hypothesis "Random Effect model is appropriate". Depending upon the results of BP-LM test and Hausman Test, the study concludes the best-fit model and accordingly the results are interpreted.

statistics of various variables used in the study. Descriptive statistics are reported in Table 1. The mean value of ROE is 63.57387 with standard deviation of 201.7395. The mean value of ROA is 0.079900 with standard deviation of 0.306847. The average CMR value is 0.024539 with standard deviation of 0.033151. Similarly, the average value of SR, UR and LR (along with their standard deviation) are 3.221555 (1.925034), 822.7218 (3387.310) and 1.324531 (8.115716) respectively. The average size of insurance companies is 11.43023 and the average income from investments is 50388.84. There is positive skewness in the data for ROE, CMR, SR, UR, SIZE and INV_INC. The data for all the variables is highly leptokurtic. The Jarque-Bera Test for normality rejects the null hypothesis of normal distribution for all the variables under consideration as reported p-value is significant at 1% level of significance in case of all the variables.

V. Empirical Findings

The result analysis begins with discussing descriptive

Table 1: Descriptive Statistics

	Mean	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Probability	Observations
ROE	63.57387	201.7395	5.903258	46.01534	15254.47	0.000000	184
ROA	0.079900	0.306847	-0.292671	4.800860	27.49053	0.000000	184
CMR	0.024539	0.033151	2.242261	7.896247	337.9786	0.000000	184
SR	3.221555	1.925034	2.197323	7.883019	330.8687	0.000000	184
UR	822.7218	3387.310	7.169914	62.33382	28567.02	0.000000	184
LR	1.324531	8.115716	-11.25467	148.0269	165136.0	0.000000	184
SIZE	11.43023	1.483748	1.667783	6.730926	192.0179	0.000000	184
INV_INC	50388.84	67961.76	1.833962	5.603730	155.1202	0.000000	184

Source: Authors' calculation using EViews

The correlation analysis results given in Table 2 indicate ROE is positively related to ROA, SR, UR, INV_INC

and size but negatively correlated to CMR and LR. ROA is positively correlated to ROE, UR, Size and INV_INC but negatively associated with CMR, SR and LR. If we focus on correlation coefficients between two independent variables/ independent and control

variables, none of the two variables are highly correlated with each other, thus the problem of multicollinearity is ruled out.

Table 2: Bivariate Correlation Matrix

	ROE	ROA	CMR	SR	UR	LR	SIZE	INV_INC
ROE	1.000000							
ROA	0.243102	1.000000						
CMR	-0.222524	-0.294385	1.000000					
SR	0.213416	-0.010279	-0.205164	1.000000				
UR	0.308341	0.013773	-0.166513	0.066807	1.000000			
LR	-0.241855	-0.005631	0.025404	0.032120	-0.133045	1.000000		
SIZE	0.568077	0.258081	-0.546052	0.018410	0.584347	-0.120797	1.000000	
INV_INC	0.580378	0.374201	-0.387367	0.053590	0.510222	-0.036050	0.561061	1.000000

Source: Authors' calculation using EViews

Table 3 summarises the results of regression equation (1) in which ROE as the dependent variable, CMR, SR, UR and LR are independent variables and SIZE and INV_INC are control variables. Table 3 depicts the results of all the three estimation models, namely, POLSM, FEM and REM along with the two post estimation tests, namely, BP-LM Test and Hausman Test. First, the estimation is done with POLSM. On the results of POLSM, BP-LM test is conducted to confirm the existence of panel effect in data, if any. The test results inferred that POLSM is not appropriate due to presence of random effects. This gives impetus to move towards FEM and REM estimations. Further, to establish whether the random effect is due to randomness of sample or due to company-specific factors, the results of REM are subjected to the Hausman test. This test is conducted to check which model is most appropriate: REM or FEM. The results of Hausman Test reject the null hypothesis "REM is appropriate." as observed Chi-Square Statistic

is significant with a p-value < 0.01. This concludes that FEM is most appropriate model in the present case. As FEM is validated to be the best fit model for running regression with equation (1), the results are interpreted with FEM model.

The results depict that ROE is significantly affected with connection with CMR, UR, LR, SIZE and INV_INC, but is not significantly affected with SR. The significant positive coefficient of CMR infers that as capital management risk increases, the FP measured with ROE also increases, while significant and negative coefficients of UR and LR shows as underwriting risk and liquidity risk increases, the FP measured with ROE of insurance companies decreases. SIZE and INV_INC are having positive impact on ROE. Thus, research hypothesis (H_0) is accepted so far as the impact of CMR, UR and LR on FP i.e. ROE is concerned.

Table 4 summarises the results of regression equation (2) in which ROA is the dependent variable, CMR, SR, UR

and LR are independent variables and SIZE and INV_INC are control variables. Table 4 represents the results of three estimation models, namely, POLSM, FEM and REM along with the post estimation tests, BP-LM Test and Hausman Test. As a first step, the estimation is done with POLSM and on its estimated results, BP-LM test is conducted to validate the presence of random effects, if any. The BP-LM test results made it clear that POLSM is not efficient as presence of random effects is confirmed. This provides a push towards FEM and REM estimations. Now, to check whether the random effect is due to randomness of sample or due to company-specific factors, on the results of REM, the Hausman test is carried out. This test helps in deciding which model is most appropriate: REM or FEM. The results of Hausman Test in present case accepted the

null hypothesis “REM is appropriate.” as observed Chi-Square Statistic is insignificant with a p-value > 0.05. This concludes that REM is most appropriate model in the present case. As REM is turned out to be the best fit model for running regression with equation (2), the results are interpreted with REM model.

The results in Table 4 demonstrate that CMR is having significant negative impact on ROA, however, SR, UR and LR are having insignificant negative impact on ROE. The significant negative coefficient of CMR infers as capital management risk increases, the FP of an insurance company measured with ROA decreases. The SIZE and INV_INC are having positive impact on FP measured with ROA. Thus, research hypothesis (H_a) is accepted only for the impact of CMR on i.e. ROA.

Table 3: Results of Panel Estimation with POLSM, FEM and REM with ROE as Dependent Variable

Dependent Variable: ROE			
Beta Coefficients with Standard Errors in Parentheses			
Independent Variables	POLSM	FEM	REM
Constant	-730.6316*** (210.9158)	-977.6779*** (199.6058)	-824.2352*** (191.2786)
CMR	1012.508** (440.0862)	2715.417*** (481.6326)	1563.808*** (421.1879)
SR	24.84034*** (6.091178)	1.874945 (11.58805)	23.22540*** (6.656162)
UR	-0.007008* (0.004233)	-0.010657*** (0.004113)	-0.007859** (0.003882)
LR	-5.143461*** (1.411616)	-3.454000*** (1.324590)	-4.541566*** (1.277543)
SIZE	57.18783*** (18.71672)	81.18323*** (17.51513)	64.44063*** (16.86423)
INV INC	0.000957*** (0.000337)	0.001071*** (0.000306)	0.001003*** (0.000301)
Adjusted R ²	0.434926	0.562482	0.460180
F-Statistic (p-Value)	24.47527 (0.00000)	9.402437 (0.00000)	27.00027 (0.00000)
BP-Test LM Statistic (p-Value)	Cross Section Effect 12.05425 (0.0005)		
Hausman Test Chi-Square Statistic (d.f.) (p-Value)	28.927807 (6) (0.0001)		

*p-value<0.10. **p-value<0.05, ***p-value<0.010

Source: Author’s calculation using EViews

Table 4: Results of Panel Estimation with POLSM, FE and RE with ROA as Dependent Variable

Dependent Variable: ROA			
Beta Coefficients with Standard Errors in Parentheses			
Independent Variables	POLSM	FEM	REM
Constant	1.081026 (0.378164)	1.172441*** (0.423050)	1.081026 (0.393344)
CMR	-2.770338*** (0.789058)	-2.881931*** (1.020785)	-2.770338*** (0.820732)
SR	-0.014490 (0.010921)	-0.036247 (0.024560)	-0.014490 (0.011360)
UR	-1.29E-05* (7.59E-06)	-1.40E-05 (8.72E-06)	-1.29E-05 (7.89E-06)
LR	-0.001563 (0.002531)	-0.001692 (0.002807)	-0.001563 (0.002633)
SIZE	-0.090608*** (0.033558)	-0.092016** (0.037122)	-0.090608** (0.034905)
INV INC	3.21E-06*** (6.04E-07)	3.18E-06*** (6.48E-07)	3.21E-06*** (6.29E-07)
Adjusted R ²	0.214792	0.150487	0.214792
F-Statistic (p-Value)	9.343213 (0.0000)	2.157773 (0.001646)	9.343213 (0.00000)
BP-Test LM Statistic (p-Value)	Cross Section Effect	5.102096 (0.0239)	
Hausman Test Chi-Square Statistic (d.f.) (p-Value)	1.830793 (6) (0.9346)		

*p-value<0.10. **p-value<0.05, ***p-value<0.010

Source: Author's calculation using EViews

VI. Conclusion

With the aim of examining the impact of financial risks on FP of private insurance companies in India, this study proxied the FP with the two the most commonly used accounting measures of profitability, ROE and ROA. The study is based on secondary data of 23 private insurance companies in India extracted from Handbook of Indian Insurance Statistics 2020-21 for the period of eight years from 2013-14 to 2020-21. To empirically examine the results with regression method, the study employed panel data analysis. The findings of the study validated the significant impact of financial risk on FP i.e., profitability of insurance companies. ROE is found to be significantly positively affected with CMR and significantly negatively affected with UR and LR. ROE is insignificantly affected with SR. The significant positive impact of CMR on ROE leads to the conclusion that the increase in capital and the resultant increase in investments is not able to convert into investment income and ultimately into profitability

of insurance companies at the same rate as increase in capital. A reason for this can be the ever-increasing underwriting losses that these companies have suffered during the period under consideration. On the other hand, solvency risk shows a negative but insignificant relation with ROE while underwriting risk and liquidity risk show negative but significant relation with ROE. It tells that the shareholders are quite adversely affected by increase in underwriting and liquidity risk as it hugely dents the profits earned by the company. ROA is found to be significantly negatively affected with CMR, but ROA is found to be insignificantly negatively impacted with SR, UR and LR. The negative significant impact of CMR on ROA reiterates the fact that more the capital, more the investments, and therefore more the returns and vice versa. The insurance companies are suggested to maintain adequate capital base to cushion them from underwriting losses. Though the results show that SR, LR and UR are having negative but insignificant impact on ROA, the matter of the fact is that the insurance companies need to maintain huge cash balances to

meet the claims incurred which may have detrimental effect on profitability. Frequent underwriting losses require high solvency margins in these companies. Also, these companies often run into losses in their underwriting business which is compensated with the investment income they earn. Thus, as solvency risk and underwriting risk rise, the profitability of insurance companies gets adversely affected. The results of the study endorse that financial performance of the insurance companies is dependent upon the financial risks that these companies bear, therefore, insurance companies can enhance their profitability by effectively managing the financial risks inherent in their business operations.

It is important to use caution when extrapolating the findings of this study as it suffers from certain limitations. The study used panel data regression analysis which assumes a linear relationship among variables in the models employed which may not be the case. Also, the research is conducted over eight years from 2013-14 to 2020-21 which includes the year 2020-21 affected by the COVID-19 pandemic and its probable impact on FP of insurance companies, if any, is not dealt with separately.

Future studies may be conducted through a questionnaire-based survey of top managers of insurance companies in India or a comprehensive case study of a particular insurance company to gain an in-depth insight into the management practices of insurance companies regarding their strategies to deal with financial risks to improve FP. Additionally, future researchers may carry out a comprehensive analysis of all public and private life insurance companies operating in India over a longer time span or an event study for pre-COVID-19 pandemic period and post-COVID-19 pandemic period. A comparative study could also be conducted between private life insurance companies and lone public life insurance company i.e. Life Insurance Corporation (LIC) to gain an understanding about whether these companies differ in their approaches in managing the influence of financial risk on their FP.

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