

Relationship between Financial Risk and Financial Performance: An Insight of Indian Insurance Industry

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Abstract: *Insurance companies are in the business of taking risks. Worldwide these companies write policies that deal with specific risks, and in many cases, even underwrite exotic risks. Therefore, obtaining coverage for every insurable risk is being replaced by the risk management concept. Risk management, which includes insurance coverage, is intended to minimize the costs associated with assuming certain types of risk and providing prudent protection. Managing risks is an important factor which insurance companies must attend to, if they are to achieve financial performance. From this perspective, the financial risk management has gained due importance for financial institutions and risk management has become one of the most important practices to be used especially in insurance companies in order to get higher returns. Therefore, this study is endeavoured to ascertain the relationship between financial risk and financial performance of insurance companies in India. The results of the multiple linear regression model reveals that capital management risk, solvency risk, liquidity risk, volume of capital and size of company are most important determinants of financial performance of life insurance companies in India, whereas ROA (proxy measure for financial performance) has statistically insignificant relationship with underwriting risk. The study led to the conclusion that 54.7 percent changes in financial performance of life insurance companies in India could be accounted for by changes in capital management risk, solvency risk, liquidity risk, underwriting risk, size of the company and volume of capital. The study established the fact that risks like capital management risk, solvency risk and underwriting risk are the deterrent factors for the financial performance of life insurance companies in India. The study also led to the conclusion that size of a company, volume of capital and more surprisingly liquidity risk are the pull factors for the financial performance of life insurance companies. On the basis of these findings, the study recommends that there is greater need for life insurance companies in India to manage the risks particularly capital management risk and solvency risk more effectively. The study also recommends that there is a dire need for insurance companies in India to increase their size by enhancing their assets base since it was found that size is an important factor influencing their competitive power and financial performance.*

Keywords: Financial Performance, Financial Risk, Insurance, Determinants.

1. Background of the Study

The insurance sector has been immersed in a permanent updating process, fostering the changes needed to adapt both to the new economic environment and to the growing levels of safety, transparency and effectiveness which are increasingly being demanded by financial markets and citizens [27]. Insurance companies are in the business of taking risks. Worldwide these companies write policies that deal with specific risks, and in many cases, even underwrite exotic risks. In carrying its core activities, i.e., pricing, underwriting, claims handling and reinsurance management, an insurer will face a wide range of risks which are often interlinked and if not properly managed, could threaten the ability of the institution to achieve and sustain its viability. Therefore, obtaining coverage for every insurable risk is being replaced by the risk management concept. Risk management, which includes insurance coverage, is intended to minimize the costs associated with assuming certain types of risk and providing prudent protection. It deals with pure risks that are characterized by chance occurrence and that may only result in a financial loss. [48] states that managing risks is an important factor which insurance companies must attend to if they are to achieve financial performance. There are many techniques available for insurance companies to manage risks. These include: loss financing, risk avoidance and loss prevention and control. Management of insurance companies is argued to carefully judge the insurable risks so as not to incur excessive losses in settling claims [45].

The risk management process in insurance spans a continuum of activity from identifying, assessing, preventing and reducing risk to pricing, carrying and diversifying risk. When unexpected losses arise, insurance helps communities cope with the financial hardship associated with them [55]. Most insurance companies are very good at assessing insurance risks but are not very good at setting up structures in their own home to manage their own operating and business risks. [40] Stated that most insurance companies are accepting to cover all the insurable risks without first carrying out proper analysis of the expected claims from the clients and they have not put in place a mechanism of identifying various methods of reducing risks. They have accumulated claims from clients and this has led to consistent increase in losses which resulted in hindering of their financial performance [43]. This complex situation has encouraged us to conduct a study which may show the current situation and the degree of impact these types of risks exert on the financial performance of insurance companies in India. Accordingly, the following objectives are framed:

Objective of the Study

- To establish the relationship between financial risk and financial performance of insurance companies in India.
- To study the factors that determines the financial performance of insurance companies in India.

The rest of the paper is structures as follows: Section 2 deals with concept of financial risk and financial performance in

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insurance companies. Section 3 discusses the current scenario of life insurance industry in India. Section 4 deals with risk management process in Insurance companies. The determinants of financial performance in life insurance companies in India have been discussed in Section 5. Section 6 discusses the research methodology of the study. Section 7 deals with the analysis and interpretation of the data. Section 8 offers the concluding remarks and Section 9 presents the limitations and direction for future research.

2. Financial Risk and Financial Performance

Insurance companies are engaged in the business of taking risks. Throughout the globe, these companies deal with a host category of risks which have a direct impact on the performance of these companies. These risks prove to be a greater setback in the process of achieving growth in terms of size, assets and performance of the company which is measured in the form of returns. Thus, such a crippling situation in the organization necessitates a better approach being in place in order to understand these risks and develop an instrumental structure or framework to handle such risks. The key risks which hamper the performance of insurance companies include underwriting risks, market risks, credit risks, operational risks, liquidity risks, and strategic risks (reputation risk, compliance risk or legal risk, agency risk, and so on). Most of these risks can be categorized under a single umbrella term of financial risk.

To put the financial risk in simpler terms, it can be defined as an umbrella term for multiple categories of risk associated with financial transactions. It can further be explained as the possibility where the investors lose money if they are investing in the company whose cash flows are inadequate to meet the matured obligations. [14] defines financial risk to be the added variability of the net cash flows of the owners of equity that results from the fixed financial obligation associated with debt financing and cash leasing. Also, financial risk encompasses the risk of cash insolvency. However, this notion will be expanded to include the risk of being unable to meet prior claims with the cash generated by the firm, which is determined by the dispersion of net cash flows and the level of fixed obligations, as well as the firm's pool of liquid resources [37]. In a similar vein, [8] have explained the increased importance of financial or corporate risks because of a variety of reasons stemming from price fluctuations, interest rate fluctuations, increased competition and greater deregulation. Moreover, with the advent of derivatives which acts as hedging instruments has let the organizations to resort to an additional avenue to protect their organizations against the shocks of financial risks [15].

2.1. Financial Performance

Measuring the performance of insurance companies has gained the momentum from the last couple of years, because insurance sector is not only an avenue for money saving, but also serves as a vehicle to channel funds in an appropriate way from surplus economic sectors to deficit sectors so as to support the investment activities in the economy.

Technically, financial performance is defined as a subjective measure which determines how well the organizations use

their available resources to generate more revenues. The financial performance measures the financial soundness and health of the organization in monetary terms and thus, can be used to compare the performance of different corporations within any particular industry or between the industries. The financial performance of the insurance companies plays a pivotal role in the growth of the industry as a whole, which ultimately contributes to the success of an economy. The insurance companies endanger their financial performance by assuming different types of risks. In order to have full and fuller understanding of the impact of financial risk on the profitability of insurance companies the present study will take into consideration various ratios like solvency, liquidity, profitability etc.

3. Current Scenario of Insurance Industry in India

Insurance industry, the world over forms an integral part of the financial services sector and plays a pivotal role in the economic growth of an economy. A well-developed insurance market paves way for efficient resource allocation through transfer of risk and mobilization of savings. The insurance market in India has witnessed dynamic changes including entry of a number of global insurers in both life and general segment. Till 2000, there was only one life insurance company operating in India i.e., Life Insurance Corporation (LIC) in the public sector. In 1999, the Indian government allowed privatisation of the insurance sector by setting up Insurance Regulatory and Development Authority (IRDA) to regulate and develop insurance industry. Since then, the industry expanded tremendously in terms of premium income, new business policies, agents, No. of offices, products etc. The insurance sector in India has experienced a growth rate of 15-20 percent during the post reform period.

Presently, there are 53 insurance companies operating in India, of which 24 are in the life insurance and 28 are in the non life insurance business. In life insurance business, India is ranked 11th among the 88 countries from which data is published by Swiss Re. India's share in global life insurance market was 2.00 percent during 2013. Globally, the share of life insurance business in total premium was 56.2 percent. However, the share of life business for India was very high at 79.6 percent, while the share of non life insurance business was small at 20.4 percent [10].

During the first decade of insurance sector liberalisation, the sector has reported consistent increase in insurance penetration from 2.71 percent in 2001 to 5.20 percent in 2009. However, since then, the level of penetration has been declining reaching 3.9 percent in 2013. A similar trend was observed in the level of insurance density which was maximum of USD 64.4 in the year 2010 from the level of USD 11.5 in 2001 [10]. During the year 2013-14, LIC was still the market leader which had the market share of 75.39 percent. On the other hand, private insurers had a very low market share which stood at 24.61 percent.

4. Risk Management Process in Insurance

As stated earlier, insurance organizations are in the business of risk. They deal with a number of financial risks which have a bearing on the financial performance of the organization. While delivering the insurance and other financial services, they assume a certain degree of financial risks. Such risks may either be eliminated or mitigated by the insurance companies with a transaction by proper business practices or it will transfer the risk to other parties by reinsurance, pricing and by similar practices. Only the amount of quantifiable risks which are beyond the level of risk appetite of the insurance organization needs to be managed by the company at its own. This is the point where an insurance company needs to conceive a better risk management approach, employing sound and fruitful techniques, tools and procedures, which will promise the remarkable returns, thus, satisfying the organizational goals. Laconically, insurance companies resort to the three main ways of managing risks, i.e., Risk Avoidance through business practices, Risk Transference through the construction of portfolios or Diversification and managing the risk at the firm level by holding the persons accountable. Further, there exist markets for many of these risks borne by the insurance companies. These include catastrophic risk which can be offset by undertaking positions in the catastrophic futures or bonds. Indeed a number of alternatives to minimize the adverse impacts of such risks are under consideration [38]. Likewise, interest rate risk can be minimized through the use of derivatives like swaps, futures or through other hedging instruments.

[13] in their research had provided the financial view of risks faced by the insurance companies. Accordingly, they have divided the financial risks into six main components, i.e., Actuarial Risk, Systematic Risk, Credit risk, Liquidity Risk, Operational Risk and Legal risk. Moreover, they had identified a host of motivating rationales for managing the financial risks like Managerial self-interest, nonlinearity of taxes, cost of financial distress, existence of capital market imperfection, etc. They further have dictated different approaches to manage such financial risks within an insurance organization. Generally an insurance organization relies on a number of techniques in their risk management framework. But most prominently, four types of practices evolve as instrumental in managing the financial risk and thereby improving the financial performance of the organization. These important techniques include standards and reports, underwriting authority and limits, investment guidelines or strategies, and incentive Schemes. These tools are employed to quantify the risk exposure, spell out the procedures to manage and limit such exposures to the acceptable levels, and manage or motivate the risk managers to manage risk in a way which is consistent with the organizations goals and promises the better performance of the organization.

[25] made a cost – benefit analysis and provided, if the costs of instruments employed in managing the financial risks are less than the benefits availed from these different types of hedging instruments, such an activity of financial risk management is a shareholder value enhancing activity. Therefore, the authors suggested the risk managers to devote

their efforts and resources in eliminating or mitigating the financial risks for sound profitability.

Literature further witnesses that the Insurers use hedging instruments to maximize value. Moreover, these instruments are employed to absorb the negative consequences of asset volatility, liquidity, exchange rate and interest rate risks [24]. Addressing the financial risks in a more sophisticated manner, [52] argued that the theory of risk management, if applied in a well defined manner will protect the financial corporation's from the market shocks, bankruptcy and financial distress. Following the rudiments of risk management, financial managers in their best capacity can enhance the value of their business undertakings through their productive efforts. Thus, with the help of provisions of risk management, financial institutions can make themselves withstand against the downside movements of risk. It has also quite elicited, that for better financial performance of insurance corporations, they must incorporate the framework based approach and corporate governance in their management process so that all the risks are identified, understood and controlled well on time.

5. Determinants of Financial Performance

Generally, there are two kinds of performance, financial performance and non-financial performance. Financial performance stresses on variables related directly to financial report. Financial performance is an important tool used by actuaries in the process of decision making on underwriting and investment activities of the insurance company. The financial performance of insurance companies is also relevant within the macroeconomic context since the insurance industry is one of the financial system's components, fostering economic growth and stability [18].

The financial performance of insurance companies can be analysed at micro and macroeconomic level, being determined both by internal factors represented by specific characteristics of the company and external factors regarding connected institutions and macroeconomic environment. Identifying the factors that contribute to insurance companies' financial performance is useful for investors, researchers and financial analysts. [5] contend that the factors underpinning the financial performance of financial service firms are often difficult to discern because of lack of the intangible nature of output and the lack of transparency over resource allocation decisions. However, [58] argued that these factors could be further classified as internal, industry and macroeconomic factors. Nevertheless, in most of the literature, financial performance with regard to insurance companies has been usually expressed in as a function of internal determinants. Further, [6] revealed that profitability proxied for financial performance can also be appraised at the micro, meso and macro levels of the economy. The micro level refers to how firm-specific factors such as size, capital, efficiency, age, and ownership structure affect profitability. The meso and macro level refers to the influence of support institutions and macroeconomic factor respectively.

5.1. Company Size

Several studies have been conducted to examine the effect of size on the financial performance of an insurance company. For example, [34] suggested that large insurers are likely to perform better than small insurers because they can achieve operating cost efficiencies through increasing output and economising on the unit cost of innovations in products and process development. A positive linkage between company size and its financial performance is expected, since large firms have more resources, a better risk diversification and better expenses management. Similarly, the research conducted on the relationship among firm characteristics including size, age, profitability and growth by [53] indicated that large firms are found to grow faster than small smaller and younger firms found to grow faster than older firms. Hence, most of the researchers in insurance have found a positive relationship between size and profitability. For example, [26] and [51] have established a positive correlation between size and profitability. Similarly, [12] found that the profitability of companies is positively impacted by size, sales growth and investment.

5.2. Liquidity

Liquidity measures the ability of managers in insurance and re-insurance companies to fulfil their immediate commitments to policyholders and other creditors without having to increase profits on underwriting and investment activities and/or liquidate financial assets [3]. Empirical evidences with regard to liquidity revealed almost inconsistent results. For example, [20] revealed that liquidity has a significant statistical impact on financial performance of insurance companies. In contrast, [2] found negative relationship between liquidity and profitability. [4] in his study in Pakistan found that ROA has statistically insignificant relationship with liquidity. On the other hand, [33] observed that liquidity and investment are the important determinants of bank's profitability, which also applies to insurance.

5.3. Leverage

The degree of financial leverage reflects the insurance and re-insurance companies' ability to manage their economic exposure to unexpected losses [3]. Low leverage provides a measure of corporate financial strength and ostensibly reduces the need for managers to increase investment earnings, for example, to build-up reserves. Leverage ratios can also provide an indication of a company's long term solvency. In order to increase the leverage of the company, the company should have more insurance policies, policies of re-insurance and make use of debt. Empirical evidences with regard to leverage have found both positive and negative but statistically significant relationship with profitability. For instance, [41], [16], [47] and [2] have stated that an increase in the leverage has a positive impact on their financial performance. In contrast, for instance, [7] in UAE, [44] in Pakistan, [53] in Egypt and [29] in Sub-Saharan countries have found negative but statistically significant relationship between leverage and profitability of firms.

5.4. Solvency

Solvency ratio is the ability of a company to meet its long-term fixed expenses and to accomplish long term expansion and growth. A solvency ratio of greater than 20 percent is considered financially healthy. Research on the property-liability insurance industry reveals that firms with greater financial strength as measured by insurance rating firms, command higher premiums [51]. Similarly, Cummins [22] suggest that insurers with greater ratings are perceived as safer which results in higher returns. A positive linkage between solvency margin and the insurer's financial performance is expected, since the insurers financial stability is an important benchmark to potential customers.

5.5. Underwriting Risk

The underwriting risk emphasizes the efficiency of the insurers underwriting activity and is measured through the loss ratio, which is computed as a ratio of gross claims to gross written premium. Underwriting risk reflects the adequacy or otherwise of insurers' underwriting performance [3]. Sound underwriting guidelines are pivotal to an insurers' financial performance. The underwriting risk depends on the risk appetite of the life insurers'. For instance, [28] contends that organisations that engage in risky activities are likely to have more volatile cash flows than entities whose management is more averse to risk taking. Therefore, a negative connection between the underwriting risk and the insurers' financial performance is expected, since taking an excessive underwriting risk can affect the company's stability through higher expenses. Furthermore, insurance companies with high annual insurance losses will tend to increase their level of corporate management expenses ex-post (e.g., claims investigation and loss adjustment costs) that could further exacerbate a decline in their reported financial performance. In contrast, insurers and re-insurers with lower than expected annual losses are likely to exhibit better financial performance because for example, they do not incur such high monitoring and claim handling costs.

5.6. Volume of Capital

Volume of Capital is viewed as the key indicator of an insurers' financial soundness and prudential standards recognise the importance of adequate capitalisation with solvency as key focus area of insurance supervision. Capital is seen as a cushion to protect insured and promote the stability and efficiency of financial system, it also indicates whether the insurance company has enough capital to absorb losses arising from claims. In most of the studies concerning insurance companies, volume of capital measures as the difference between total assets and total liabilities and in some cases it is measured by the ratio of equity capital to total assets.

Volume of capital is widely used as one of the determinants of insurance companies' profitability since it indicates the financial strength of the firm. A positive connection between the volume of capital and insurers' financial performance is expected, given that a greater flow of equity generates a better financial stability and the possibility of expanding the business [11]. Studies conducted in different countries have

found positive and statistically significant relationship between insurance capital and profitability. For example, [44] examined the relationship between volume of capital and return on assets for Pakistan insurance industry and found positive and statistically significant relationship between insurance capital and profitability. A similar study was conducted by [7] in UAE which found that there exists a positive and significant relationship between volume of capital and profitability.

6. Research Methodology

6.1. Data and Sample of the Study

The study is analytical and empirical in nature and is aimed to explore the relationship between financial risk and financial performance of insurance companies in India. The study also attempts to analyze the determinants of the financial performance in the Indian insurance market. For the Indian insurance market, only two studies on the insurers' financial performance had been performed so far. Therefore, this analysis improves the understanding of the Indian insurance market and can provide useful information to insurance companies, investors, and supervisory authorities. Out of the 24 life insurance companies which are currently operating in the Indian insurance market, eight life insurance companies have been selected all belonging to private sector. In terms of total market share, these companies together accounted for 94 percent of the market share held by private sector. The financial data have been collected from the annual reports of the selected insurance companies and Handbook on Indian Insurance Statistics 2011-12. In order to determine the factors that influence the financial performance in the Indian insurance market during the interval 2005-06 – 2012-13, six explanatory variables will be tested: Capital management risk, solvency risk, liquidity risk, underwriting risk, company size and volume of capital. As for the dependent variable, the financial performance of the insurance companies is measured through Return on Assets Ratio (ROA).

6.2. Data Analysis Techniques

For the purpose of carrying out empirical analyses, the study employed multiple linear regressions model to determine the relationship between financial risk and financial performance. Data analysis has been done using SPSS software. For determining the relationship, the study used Return on Assets (ROA) as proxy for the firm's financial performance as a dependent variable and independent variables comprising of Capital Management Risk, Solvency Risk, Liquidity Risk, Underwriting Risk, size of a company and volume of capital.

Prior to carrying out a multiple regression analysis, a correlation matrix has been developed to analyze the relationships between the various independent variables which helped us to detect any chance of multicollinearity. In addition to this, significance tests like ANOVA, F- test and t-tests were also conducted to determine whether the null hypotheses should be rejected in favour of alternative hypotheses or not. The ANOVA test was used to test the regression model level of significance at 5 percent level. To

test for any significant differences between the key determinants of financial performance and financial risk, t-test and F-test were also used. The t-test is conducted to analyze the level of significance of the regression coefficients and F-test is used to test the overall significance of the estimated regression coefficients and to test the significance of R^2 .

6.3. Model Building

The following Multiple Regression Equation Model is applied in this study,

$$FP = \beta_0 + \beta_1 CMR + \beta_2 SR + \beta_3 LR + \beta_4 UR + \beta_5 SZ + \beta_6 VOC + e_{it}$$

Where:

β_0 : The intercept of equation.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$: Coefficients for independent variables.

FP: is the financial performance of insurance companies, it is measured using Return on Assets as a proxy variable for firm's financial performance.

CMR: Capital Management Risk, capital management risk is measured using the ratio of capital and reserves to total assets for insurance company.

SR: Solvency Risk, this is measured by the ratio of available solvency margin to required solvency margin.

LR: Liquidity Risk, this is measured by liquidity ratio which is the ratio of current assets over current liabilities.

UR: Underwriting Risk, this is measured by the ratio of benefits paid over net premium.

SZ: Size of the Company, this is measured by the natural log of total assets of the Company.

VOC: Volume of Capital, this is measured by the natural log of book value of equity.

e_{it}: Error term.

6.4. Hypotheses of the Study

Based on review of relevant literatures, it is hypothesized that Capital Management Risk (CMR), Solvency Risk (SR), Liquidity Risk (LR), Underwriting Risk (UR), Size of Company (SZ) and Volume of Capital (VOC) are expected to influence firms' financial performance as measured by Return on Assets (ROA). Therefore, based on the research objective, the following hypotheses are formulated which are then tested using various statistical tools:

H1: There is no significant impact of capital management risk on the financial performance of life insurance companies in India.

H2: There is no significant impact of solvency risk on the financial performance of life insurance companies in India.

H3: There is no significant impact of liquidity risk on the financial performance of life insurance companies in India.

H4: There is no significant impact of underwriting risk on the financial performance of life insurance companies in India.

H5: There is no significant impact of size on the financial performance of life insurance companies in India.

H6: There is no significant impact of volume of capital on the financial performance of life insurance companies in India.

7. Data Analysis and Interpretation

7.1. Descriptive Statistics

Table 1: Descriptive Statistics

	N	Min	Max	Mean	S.D.
ROA	64	-15.22	7.64	-0.64	3.29
CMR	64	3.66	45.07	14.5	9.40
SR	64	1.53	6.34	2.65	1.02
LR	64	37.58	241.5	80.09	36.34
UR	64	2.9	136.1	25.72	26.19
SZ	64	10.86	15.82	13.92	1.13
VOC	64	9.61	12.21	11.32	0.85
Valid N	64				

Source: Results obtained using SPSS Software

Note: ROA: Return on Assets, CMR: Capital Management Risk, SR: Solvency Risk, LR: Liquidity Risk, UR: Underwriting Risk, SZ: Size and VOC: Volume of Capital.

Table 1 portrays the descriptive statistics for the variables used in this study. The Return on Assets averaged - 0.63 percent and ranged from -15.22 percent (PNB MetLife) to 7.64 percent (PNB MetLife). Similarly, capital management risk had an average of 14.50 percent and ranged between 3.66 percent (Bajaj Life) to 45.07 percent (PNB MetLife). Solvency ratio had an average of 2.64 percent and ranged from 1.53 percent (ICICI) to 6.34 percent (Bajaj Life). In a similar vein, the liquidity ratio had an average of 80.09 percent and ranges between 37.68 percent (ICICI Life) to 241.51 percent (SBI Life). The ratio of underwriting risk averaged 25.72 percent and ranged between 2.90 percent (HDFC Life) to 136.11 percent (Bajaj Life). The natural log of volume of capital averaged 11.32 with a minimum of 9.61 (Bajaj Life) and a maximum of 12.21 (PNB MetLife). Finally, in terms of size (as measured by natural log of total assets) the selected companies recorded an average of 13.92, with minimum size recorded by PNB MetLife (i.e., 10.86) and the maximum size reported by ICICI Life (i.e., 15.822).

7.2. Correlation Analysis

Table 2: Correlation Matrix

	ROA	CMR	SR	LR	UR	SZ	VOC
ROA	1.00	-.346	-.387	.056	-.462	.416	-.034
CMR	-.346	1.00	.333	-.079	-.421	-.732	.011
SR	-.387	-.333	1.00	.430	.670	.330	-.293
LR	.056	-.079	.430	1.00	.177	.031	-.008
UR	-.462	-.421	.670	.177	1.00	.606	-.028
SZ	.416	-.732	.330	.031	.606	1.00	.294
VOC	.034	.011	-.29	-.008	-.02	.294	1.00

Source: Results obtained using SPSS Software.

Note: ROA: Return on Assets, CMR: Capital Management Risk, SR: Solvency Risk, LR: Liquidity Risk, UR: Underwriting Risk, SZ: Size and VOC: Volume of Capital.

The correlation coefficient, r represents the linear relationship between two independent variables. Table 2 depicted above presents the correlation matrix between dependent and independent variables. In order to determine the strength of the relationship between dependent variable, i.e., ROA and various independent variables, the study makes use of a Pearson Moment Correlation [A correlation coefficient is a statistical measure of the degree to which, changes to the value of one variable predict change to the value of another. The coefficient of correlation ranges between +1 and -1. Correlation coefficient of +1 indicates a perfect positive correlation. A change in the value of one variable will predict a change in the same direction in the second variable. Correlation coefficient of -1 indicates a perfect negative correlation. A change in the value of one variable predicts a change in the opposite direction in the second variable. When there is no correlation, the coefficient will be zero [32]] to develop the correlation matrix. On the basis of findings from the correlation analysis, the study found that there is a positive correlation between return on assets (proxy for firm's financial performance) and size of insurance companies as shown by correlation factor of **0.416**. The study also found a positive correlation between ROA and liquidity risk as shown by correlation coefficient of **0.056**. In a similar vein, the association between ROA of insurance companies and volume of capital is also found to be positive as revealed by the correlation coefficient of **0.034**. On the other hand, the correlation matrix shows that ROA is highly and negatively correlated with underwriting risk and capital management risk of life insurance companies with correlation coefficients of **-.462** and **-.346** respectively. In a similar vein, the correlation coefficient between ROA and solvency risk is found to be **-.387**.

Apart from the correlation between dependent and independent variables, there are few of the independent variables which are highly correlated with each other. For instance, the correlation between CMR and SZ is found to be **-.772**. Likewise, it was found that two of the independent variables namely SR and UR are strongly correlated with each other with a coefficient estimate of **.670**. Therefore, to avoid biased regression coefficients which arise due the problem of multicollinearity, the present study evaluated the VIF values and tolerance levels of all the variables in order to assess the severity of multicollinearity. Table (3) below presents the Collinearity statistics of various independent variables:

Table 3: Collinearity Statistics

Independent Variables	Tolerance	VIF
CMR	.834	1.199
SR	.923	1.083
LR	.738	1.355
UR	.420	2.378
SZ	.349	2.869
VOC	.915	1.093

Source: Results obtained using SPSS Software.

Note: CMR: Capital Management Risk, SR: Solvency Risk, LR: Liquidity Risk, UR: Underwriting Risk, SZ: Size and VOC: Volume of Capital.

As per the Collinearity statistics depicted above, it is clearly evident that the VIF [VIF stands for Variance Inflation Factor, is the reciprocal of tolerance. It indicates the degree to which the standard errors are inflated due the level of Collinearity] values of all the independent variables are within the threshold limit of 10 [31]. Similarly, the tolerance [The percentage of variance in the independent variable that is not accounted for by the other independent variable(s). Most commonly tolerance values of .10 or less are cited as problematic] values are also within the acceptable range and are not near to zero. Hence, we can conclude that there is no problem of multicollinearity among the variables considered in this study.

7.3. Regression Analysis

Table 4: SPSS Output for Multiple Regressions

IndepVar	DepVar	β-Coeff	Std Error	t-stat	Sig.Value
(Constant)	ROA	1.03	0.12	0.12	0.90
CMR		-0.24	0.03	-8.29	0.00
SR		-0.28	0.04	-1.53	0.01
LR		0.15	0.03	5.71	0.00
UR		-0.11	0.03	-3.82	0.06
SZ		2.98	0.28	4.62	0.03
VOC		0.21	0.10	2.01	0.04
<i>R Square</i>				0.547	
<i>Adjusted R Squared</i>				0.473	
<i>F- Ratio</i>				7.889	
<i>Prob. (F Statistics)</i>				.003	
<i>Durbin Watson Statistics</i>				1.87	

Source: Results obtained using SPSS Software.

Note: Significant at 0.05 levels

Dependent Variable: ROA

ROA: Return on Assets, CMR: Capital Management Risk, SR: Solvency Risk, LR: Liquidity Risk, UR: Underwriting Risk, SZ: Size and VOC: Volume of Capital.

The output of SPSS for multiple regressions shows the result as:

$$FP = 1.034 - 0.2430CMR - 0.2810SR + 0.1511LR - 0.1131UR + 2.9862SZ + 0.2125VOC$$

From the results presented in above table, it can be revealed that the model is fit and appropriate as the corresponding probability value of F-Statistics for the model meets the appropriate statistical criteria at 5 percent level of significance (i.e., the corresponding P-Value is less than 0.05). Laconically, the ANOVA statistics indicates that the model is able to quantify that the variables under consideration are significantly influencing the financial performance of life insurance companies in India. The output for SPSS shows that without the major determinants (CMR, SR, LR, UR, SZ and VOC) of financial performance, the financial performance of life insurers would stand at 1.034 units. From the regression equation, it can be predicted that with a unit change in capital management risk, there would be decrease in financial performance of life insurance companies in India by 0.2430 units. In a similar vein, a unit change in solvency risk would lead to decrease in financial performance of life insurance companies in India by 0.2810 units. Similarly, underwriting risk has also shown negative sign which means that with a unit change in underwriting risk; there would be decrease in financial performance of life

insurance companies in India by 0.1131 units. In contrast, liquidity risk, size and volume of capital have a significant and positive impact on the financial performance of life insurance companies in India. A unit change in size of the life insurance companies would lead to increase in their financial performance by 2.9862 units and a unit change in liquidity risk would lead to increase in financial performance by 0.1511 units. Finally, a unit change in volume of capital would lead to increase in financial performance of life insurers by 0.2125 units.

From the analysis, it can be said that solvency risk had the greatest negative effect on financial performance of life insurance companies, followed by capital management risk. On the other hand, the variable size had the greatest positive impact on the financial performance of life insurance companies followed by volume of capital. In addition, the variables underwriting risk and liquidity risk were found to have the least effect to the financial performance of life insurance companies in India. All the variables were significant ($p < .05$) except underwriting risk. Moreover, from the findings in the above table, the value of R squared [R-Square, also known as the Coefficient of determination is a commonly used statistic to evaluate model fit. R-square is 1 minus the ratio of residual variability. When the variability of the residual values around the regression line relative to the overall variability is small, the predictions from the regression equation are good. This is an overall measure of the strength of association and does not reflect the extent to which any particular independent variable is associated with the dependent variable [32]] is 0.547 an indication that there was variation of 54.7 percent in financial performance of life insurance companies in India due to changes in capital management risk, solvency risk, liquidity risk, underwriting risk, size of the company and volume of capital at 95 percent confidence interval. This means that 54.7 percent change in the dependent variable i.e. Return on Assets (ROA) is due to the variations in the independent variables used in this model. R square is the percentage of variance in dependent variable which is explained by independent variables, can be increased simply by adding more variables.

7.4. Hypotheses Testing

At 5 percent level of significance, the regression results shows that the values of the variables (capital management risk, solvency risk, liquidity risk, volume of capital and size of a company) are statistically significant which means that there is significant relationship of financial performance with the capital management risk, solvency risk, liquidity risk, volume of capital and size of the company. Therefore, the null hypotheses pertaining to these variables have been rejected and the alternative hypotheses have been accepted. On the other hand, underwriting risk shows a significance level greater than 5 percent indicating that there is no significant impact of underwriting risk on the financial performance of a life insurance company. Hence, the null hypothesis regarding underwriting risk stands accepted. Hence, on the basis of results, the following conclusions are drawn:

- The results showed that there is a significant impact of capital management risk on the financial performance of life insurance companies. Hence, **H1 is rejected.**

- The results showed that there is a significant impact of solvency risk on the financial performance of life insurance companies. Hence, **H2 is rejected**.
- The results showed that there is a significant impact of liquidity risk on the financial performance of life insurance companies. Hence, **H3 is rejected**.
- The results showed that there is no significant impact of underwriting risk on the financial performance of life insurance companies. Hence, **H4 is accepted**.
- The results showed that there is a significant impact of size on the financial performance of life insurance companies. Hence, **H5 is rejected**.
- The results showed that there is a significant impact of volume of capital on the financial performance of life insurance companies. Hence, **H6 is rejected**.

7.5. Autocorrelation Results

As per the results produced by Durbin-Watson test applied on the multiple linear regression model, the results provide evidence that there exists no positive serial correlation among errors in the model, since its d-statistic, i.e., 1.87 is quite higher than the upper bound (dU) [The values of dL and dU are taken from Durbin-Watson table for 60 observations with 6 regressors at 5 percent level of significance], i.e., 1.81. Thus, null hypothesis of no serial correlation is accepted in this study [Ho: There is no autocorrelation, or $E(uiuj) = 0 \ i \neq \ j$, H1: There is autocorrelation, or $E(uiuj) \neq 0 \ i \neq \ j$].

8. Concluding Remarks

The objective of the current study was to explore the relationship between financial risk and financial performance of life insurance companies in India over the period 2005-06 – 2012-13. In this study, we modelled selected internal factors of selected life insurance companies using multiple linear regressions model to establish the factors that determine the financial performance of life insurance companies in India. For this purpose, six internal factors, i.e., capital management risk, solvency risk, liquidity risk, underwriting risk, size of company and volume of capital were taken as explanatory variables, whereas return on assets (ROA) was used as a proxy for firm's financial performance.

The results of this study contribute towards a better understanding of the financial performance of life insurance companies in India. The results of the multiple linear regressions model reveals that capital management risk, solvency risk, liquidity risk and size of company are most important determinants of financial performance of life insurance companies in India. These microeconomic variables have a profound impact on the financial performance of life insurance companies in India. On the other hand, underwriting risk was found to have statistically insignificant relationship with financial performance of life insurance companies. The results of multiple regressions model also reveal that capital management risk, solvency risk and underwriting risk exhibit a negative relationship with financial performance while liquidity risk, size and volume of capital exhibit a positive relationship with financial performance of life insurance companies in India. Hence, liquidity risk (LR), size of a company (SZ) and

volume of capital (VOC) variables are the pull factors for the financial performance of life insurance companies and capital management risk (CMR), solvency risk (SR) and underwriting risk (UR) are deterrent forces for financial performance of life insurance companies. Thus, it is concluded that the above analysis is successful in identifying those variables, which are important in improving the financial performance of life insurance companies in India.

The results of the R squared confirm that 54.7 percent variation in the financial performance of life insurance companies could be accounted for changes in capital management risk, solvency risk, liquidity risk, underwriting risk, size of company and volume of capital.

According to the final results achieved by applying the multiple linear regressions model, the study revealed that size has a positive and significant statistical impact on the financial performance of life insurance sector in India. The study is supported by [20], [41] and [54] who stated that large firms have more resources, more accounting staff and sophisticated information systems that result in more profitability which in turn results in high performance. Similarly, the study found that liquidity risk has a positive and a significant statistical impact on financial performance of insurance companies in India. These results are supported by [20] who revealed that high liquidity obviates the need for management to improve annual operational performance. In contrast, the analysis suggests that there is a negative and significant relationship between capital management risk and return on assets of insurance companies in India. Hence, it can be concluded that financial performance is highly and negatively affected by capital management risk.

As expected, the study found a positive and statistically significant relationship between volume of capital and return on assets. Hence, it can be said that that volume of capital is a major pull factor for the financial performance of life insurers in India. The results are supported by [17] - [19]. Contrary to what was hypothesised, the study found that underwriting risk has a statistically insignificant impact on the insurer's financial performance and hence the study contradicts with the earlier studies [3], [39] and [44] which predict that taking an excessive underwriting risk can affect the company's stability through higher expense. Finally, as for the solvency risk, the study established that solvency risk as expected is negatively and significantly affecting the financial performance of life insurance companies in India.

9. Limitations and Direction for Future Research

Though the research has been able to achieve significant results, there are some issues that need to be addressed in future research and are limitations of this study. First of all, it is very difficult to obtain entire data on all the insurance companies on different parameters. Since these companies have grown at different time periods and are facing different time lags, comparing different time dimensions could have mislead the results. In addition, while determining the relationship between financial performance and financial risk, the study employed financial data of insurance companies falling in the life segment, while the non-life

segment which is an important constituent of insurance industry in India is beyond the scope of this study. Thirdly, this study modeled a few selected internal factors while determining the financial performance of life insurers. Macroeconomic factors like inflation, GDP growth rate, exchange rate etc., are the factors which have been ignored in this study.

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