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#### Article

# Determinants of factors affecting the financial performance of Indian general insurance firm: Panel data evidence

**Contemporary Economics** 

#### Provided in Cooperation with:

University of Finance and Management, Warsaw

*Suggested Citation:* Sasidharan, Soumya; Ranjith, V. K.; Prabhuram, Sunitha (2023) : Determinants of factors affecting the financial performance of Indian general insurance firm: Panel data evidence, Contemporary Economics, ISSN 2300-8814, University of Finance and Management in Warsaw, Faculty of Management and Finance, Warsaw, Vol. 17, Iss. 2, pp. 237-251, https://doi.org/10.5709/ce.1897-9254.508

This Version is available at: https://hdl.handle.net/10419/297630

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## Determinants of Factors Affecting the Financial Performance of Indian General Insurance Firm: Panel Data Evidence

Soumya Sasidharan<sup>1</sup> , V. K. Ranjith<sup>2</sup>, and Sunitha Prabhuram<sup>1</sup>

#### ABSTRACT

The researchers aim to examine the firm-specific variables that impact the financial performance of general insurance firms in India. The study's scope is limited to India's insurance industries from 2010-2011 to 2019-2020. The research considers 21 insurance firms in India out of 35 general insurers. We obtain statistical data from the financial statements of insurance companies. The research used correlation analysis and panel data regression to evaluate financial performance and its impacts. Panel data techniques were employed in the analysis to study the impact of eleven micro factors on the monetary performance of general insurers in India. The influence of micro (internal) variables such as capital adequacy ratio, firm size, age of the firm, retention, liquidity, loss ratio, investment ratio, reinsurance has been determined using econometric findings in this research. The fixed-effect model results reveal that firm's age, loss ratio, size, premium growth, and retention ratio are vital in affecting the financial performance of Indian general insurance firms. On the other hand, liquidity and financial leverage are insignificant in determining the financial performance of general insurance firms in India.

#### KEY WORDS: financial performance, financial leverage, general insurance, premium growth, panel data regression.

#### JEL Classification: C19, F61, G22, G32.

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#### 1. Introduction

In modern parsimonies, the importance of insurance serves a broad public interest and is colossal. The insurance industry portrays an essential part in a country's economy since it distributes premiums collected from insureds into an investment, therefore encouraging economic development. Haiss and Sümegi (2008), well almost all developed and emerging nations, the insurance

Correspondence concerning this article should be addressed to: V. K. Ranjith, Department of Commerce, MAHE, Manipal, 576104, Karnataka, India. E-mail: ranjith.vk@manipal.edu industry plays an influential position in the financial services business. An insurance company is a risk management firm that uses insurance to transfer risk from one institution to another. Its goal is to provide a level of protection against potential losses. Individuals and organizations who do not have insurance must either face their risks, keep significant reserves on hand, or shun risk altogether. Risk aversion is a characteristic shared by most individuals and is extensively acknowledged in the

arena of loss aversion. Risk aversion is more than just a desire to avoid risk; it also includes a thorough rejection of loss. (González et al., 2019). The liberalization of the insurance business has made it more professional and has lowered entry barriers. This has made the insurance market more sophisticated. The sophisticated and advanced insurance business is a boon to industrial growth as it delivers enduring infrastructure development resources while reinforcing the country's capacity to take risks. In India, general insurance performs a vital part in the market by protecting companies and people against the threat of loss. The Indian insurance sector has experienced incredible progress in the last decade. This is anticipated to contribute on an enormous scale in the future also. The progress of insurance in India will be influenced by demographic reasons, such as the growing middle class, a youthful population that can be insured, and increasing awareness of the need for safety and retirement preparation. As per the (Insurance Regulatory and Development Authority of India) IRDA 2021 report, the Indian insurance sector comprises 57 insurance companies; there is only one public sector company among life insurers, viz. Life Insurance Corporation (LIC). General insurance consists of seven public sector insurers. Currently, this sector has 24 life insurance firms and 33 General Insurance companies (Nonlife) that sell numerous creative products considering the requirements of citizens. Most of these businesses entered the industry in partnership with foreign companies. In the nonlife insurance industry, the market share of private-sector insurers rose from 15 percent in FY 2004 to 56 percent in FY2021. In the life insurance industry, private insurers had a market stake of 31.3 percent in revamped businesses at the end of FY2021 (India Brand Equity Foundation). As per IRDA, banking and insurance services contribute nearly 7% to the country's GDP and grow rapidly at 15-20%.

The insurance companies provide channels for saving money, transferring risk, and providing funds to support economic activities. As a result, it is critical to investigate the determinant factors influencing the insurance firm's financial performance. The researcher was motivated to explore the monetary performance of insurance firms due to a paucity of empirical studies in India regarding general insurer's financial performance that focus on internal factors. Current research focuses on one of the most critical sectors in an emerging economy like India: the general insurance sector (nonlife insurance). Some recent government actions, like the demonetization process, may influence the profitability of Indian general insurance. There has been a lot of research done on financial performance analysis on life insurance in India, but it hasn't been done on the elements that focus on determinants of financial performance of general insurance institutions in India. Determinants of the performance of insurance companies must be evaluated from an internal perspective. The primary reasons for analyzing financial performance and identifying elements that impact the financial performance of general insurance businesses in India are the economic importance and lack of relevant research. Due to the nature of the business, many factors have been identified that influence the profitability of general insurance businesses operating in India. So, it is indispensable to examine the factors that impact the financial performance, which will support the insurance firms to act and shareholders to estimate the profitability of insurance firms. Previous research primarily focused on the profitability of banking institutions, manufacturing, and service industries rather than insurance companies, and while some studies focused on financial performance analysis, very few focused on the internal variables that affect insurance firms' financial performance. Thus, this study focuses on general insurance establishments based in India.

This study aims to recognize the critical determining factors of the profitability of Indian insurance firms. Also, to investigate the relationships between different microeconomic factors of insurance companies in India. And finally, to identify the dimensions to which microeconomic factors impact the profitability of insurance companies. Evaluating the performance of insurance companies has gained traction in recent years because the insurance sector serves as a vehicle for channeling funds from excess economic sectors to deficit financial sectors appropriately, thereby supporting economic investment activities. The determinants of insurers' financial performance have engrossed the interest of researchers, insurance regulators, investors, and financial market analysts. As a result, the insurance industry has grown in importance to the overall development of the business, which ultimately leads to the economy's general prosperity.

#### 2. Literature Review

Profitability, in its broadest sense, refers to the grade of financial goals that evaluate a company's overall financial soundness. It's a method for calculating a firm's monetary productivity, valuation, and growth. Numerous studies have been conducted in many countries and regions around the world to investigate the factors that influence insurance sector profitability. Recently many studies on insurance profitability determinants that are tested empirically in various countries around the world. (. Tsvetkova, Bugaev, Belousova & Zhukova, (2021). studied insurance companies in the Russian Fed eration, Ben Dhiab, (2021). studied on Saudi Insurance Market, Abdeljawad, Dwaikat, & Oweidat, studied insurance companies in Palestine (2020), Camino-Mogro, & Bermúdez-Barrezueta, studied evidence from Ecuador (2019), Derbali & Jamel (2018) who studied in Tunisia).

Kozak (2011) study using the regression model on the general insurers market in Poland for the duration of (2002-2009), demonstrated a decline in vehicle insurance with a corresponding rise in other categories of insurance. Progress in gross premiums, decreased operational costs, GDP, and increase in market stake for overseas firms have an optimistic effect on profitability. While cost proficiency of insurance has an adverse impact on profitability. The higher pace of financial growth in Poland's integration with the EU results in a stronger insurance demand that increases the profits of insurers. (Al-amro et al., 2012) The goal of this analysis was to scrutinize the factors that mainly influence Jordanian Insurance Companies' economic performance. During the period (2002-2007) which counts 25 insurance businesses, the survey population entailed all the insurance enterprises registered at Amman (stock) exchange. The study focused on internal variables and their impact on ROA. The results demonstrate the optimistic statistical influence on the monetary performances of Jordanian insurance establishments of the variables for instance liquidity, leverage, size, and organization competency index. The researcher indicated that a substantial increase in the assets of the company would lead to a good financial performance. Boadi et al. (2013) study followed the panel approach and the ordinary least square regression to assess the profitability of insurance firms in Ghana. This research established a paradigm using ROA against a set of descriptive variables which researchers believe can elucidate Ghana's insurance companies' profit levels. A positive relationship exists between leverage and liquidity, while tangibility has a negative relation to the profitability of insurance companies in Ghana. Murigu and Mwangi (2015) used a model focused on company-specific factors of general insurers' economic performance in Kenya. The findings from the study show that the greater the amount of debt, investment capital, and management competency, the better Kenya's general insurer's financial performance. Hailegebreal's (2016) researched nine private and public Ethiopian insurance companies from 2004-2014. This report discovered that written risk, leverage, technical provision, and inflation had an adverse and substantial influence. In contrast, premium rise, solvency ratio, company age, and GDP had a dynamically substantial optimistic consequence on Ethiopia's insurance business's profitability. Nonetheless, the analysis revealed that liquidity, tangibility of assets, business size and reinsurance dependency have no major impact on insurance industry performance in Ethiopia. This investigation demonstrates insurers should view loss risk cautiously and would reduce the allowance utilized for technical coverage as well as leverage rates. Monteiro and John (2017) used the ratio analysis, the CARAMEL framework, to determine the financial strength of the top public and private sector general insurance companies in India. It is measured as combined ratio, loss ratio, investment income ratio, expense ratio and management soundness. Correspondingly multiple regression was utilized to see the influence of net profit on commission expenses, investment income, net premium, and operating expenses

from 2006-2017 of private nonlife insurers. Com-

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mission costs, investment profits, net premiums, and operating expenses do not affect the private nonlife insurers' net profit. Cudiamat and Stephen (2017) investigate the performance of the life insurance sector in the Philippines employing pooled Ordinary Least Squares (OLS) for the years 2000-2012 on the balanced panel of 23 insurance firms. The research utilizes ROA as a profitability measure affected by the assigned company, industry, and macroeconomic level. The researcher endorses that the profitability of life insurers in the Philippines is largely dictated by firm (microeconomic characteristics) factors; however, the impact of (mesoeconomic) business level and macroeconomic indicators have limited or non-existent. Mulchandani et al. (2017) examine the connection between the financial performance of the Indian life insurance sector and its determinants 23 out of 24 life insurance companies for 10 years of data from 2009 to 2015 were taken for analysis. As a measure of financial performance, the Return on Assets is used. Independent factors selected include commission, liquidity, size, tangibility, solvency ratio, expense, policy liability, and risk underwriting. The commission is negatively related, and the size and the liability of the surplus policyholder is optimistically related to economic performance. Expenses, solvency ratio, liquidity tangibility, and risk not related to financial performance. Augustine and Lukmon (2017) analyzed five insurers, randomly chosen out of the 58 registered firms in Nigeria. The study was conducted to evaluate the effect of the reinsurance process on the survival of insurers. The financial statements collected for a scope of seven years (2009 to 2015). This research followed an analysis of correlation and an econometric empirical analysis, using an estimation technique of ordinary least squares. The findings indicate that the Net Retention, the Net Claim, the Ceded Reinsurance have an optimistic impact whilst the Net Commission ratio has an adverse influence on the profitability (ROA) of insurers. The researcher recommends that to ensure favorable financial results, it is essential for insurers to have optimized retention rates in financial portfolio diversification strategies. Olalekan (2018) evaluated the impact of liquid assets risk on the business performance of insurance companies listed in Nigeria for the 2011-2015 period. Loss ratio, premium growth, and leverage are taken as a proxy of liquidity risk, and ROA has taken to assess the financial performance. The random effect outcome shows leverage has a substantial adverse influence on firm performance. The loss ratio has an adverse and inconsequential impact on the ROA, while the premium positively affects the firm's performance in Nigeria. The researcher advocate that to prevent potential liquidity crises or wind-ups, insurance companies can better control their liabilities. Barua et al. (2018) examined 16 general insurance companies in Bangladesh. The record of 15 years of observation was gathered from 2000 to 2014.ROA and ROE are proxied as profitability measures, whereas total asset, age, tangibility, premium growth, liquidity ratio, loss ratio, investment ratio, and leverage are independent variables. The Researcher elicits that Bangladesh's nonlife insurance firms could follow strong interventions to mitigate the faulty underwriting techniques to increase profitability. Guendouz & Ouassaf (2018) gathered 2010-2016 statistics from the financials of the top six Saudi Insurance firms, which comprise over 60 percent of the insurance market's total assets. They used Panel data techniques on internal specific factors to see the impact on the profitability of takaful insurers. The findings of data analysis depict that loss ratio, firm size, premium growth, and age have a substantial influence on the financial performance of insurance establishments. Johny et al. (2021) investigated Gross Premium, Claim Reserve, and Premium Reserve Payment on ROA simultaneous and partial influences. This study used samples from ten general insurance companies publicly traded on the Indonesian stock exchange. Results revealed a favorable and significant impact of Gross Premium on ROA. The ROA is negatively and significantly affected by the claim's reserves. The premium reserves have a positive but negligible influence on ROA. The negative and substantial effect of claim payments on the ROA. Muchie and Sun (2021) looked at micro-level factors that affect Ethiopia's insurance sector efficiency as measured by ROA from 2005 to 2020. Premium, Insurance industry size, capital adequacy, leverage ratio, liquidity, loss ratio, insurance industry size, re-insurance dependency, company age, and the asset's tangibility are the internal variables included in the investigation. The outcomes of the panel data regression revealed that microeconomic variables such as premium growth, insurance size, liquidity ratio, loss ratio, age, and market share have a substantial effect on the insurance sector's performance. On the other hand, profitability was unaffected by the capital adequacy ratio and re-insurance dependency.

#### 2.1. Research Gaps

Several studies have investigated the financial performance determinants of insurance companies and identified various explanatory variables. The previous research literature reveals that most researchers' findings did not reach a common conclusion. Such knowledge gaps in the literature are understandable given that each country's financial, economic, and political systems are unique. Similarly, the insurance sector doesn't remain profitable over time; it varies. Many studies have been conducted in developed countries to isolate insurers' attributes, perceptions, and performance determinants; however, few studies have been conducted in developing countries such as Africa, Indonesia, and India. This research is anticipated to provide general insight into the issues confronting developing countries, particularly India.

#### 3. Variables Used In The Study

The determinant factors affecting an insurance company's financial performance focused on Internal variables. Given the availability of information and based on related theories and literature review, the dependent and independent variables used in the research were selected.

#### 3.1. Dependent Variable

Return on Assets: Most investigators of the insurance arena specified that the leading indicator of a company's financial performance is ROA.it is profit after tax on total assets. The return of assets (ROA) demonstrates how efficiently managers use their assets

Figure 1 Conceptual Framework



to produce a profit. Banerjee and Majumdar (2018) and Malik (2011), and others, indicated that while there are distinct methods of measuring financial performance, ROA is the best option to measure overall performance. Hence, ROA is considered a dependent variable for analysis in this research. This variable is most sustainable since it is a ration of efficiency, demonstrating how efficiently a business uses the resources to generate revenue. Return on equity (ROE) explains how investors' investments generate income, whilst return on assets (ROA) describes how the company utilizes its resources or funds to generate greater profits.ROA is a preferable measure of profitability since it captures the leverage utilization effect that return on equity (ROE) does not. As a result, ROA is employed by most researchers prior to ROE (Goddard et al., 2004).

#### 3.2. Independent Variable

Size of the firm: An insurance company's size is an explanatory variable. The logarithm of total assets for the corresponding years of the insurers is used to calculate the firm's size. The firm's size impacts performance in different aspects. The larger insurers are expected to be more flexible in terms of changes in market fluctuations than the smaller insurers and diversify the risk effectively, a much better position to reap the economies of scale concerning labor cost and increase overall efficiencies. Regardless of the above facts, some scholars in this field, such as Malik (2011), Charumathi (2012), Sambasivam and Ayelle (2013), depict that the size of the insurance company has an optimistic association with monetary performance.

Age of the firm: The firm's age was measured by the years since the insurance firm operated in the insurance segment. Companies' age is a non-financial statement variable. The researchers such as Kaya (2015), Sambasivam and Ayelle (2013), Taha (2015) have taken the firm's age as the independent variable. Regarding firm age, more reputable firms are increasingly experienced, are not inclined to the liabilities of newness, and have the advantage of learning in this manner, appreciating predominant execution. Older companies can also benefit from reputation and goodwill, allowing them to gain a more significant profit margin.

Capital adequacy ratio: The equity by total assets is used as a substitution for capital adequacy. The ability

of current capital to promote asset development is a significant measure of an insurer's economic strength. Insurance companies with higher equity to total assets ratio are more financially capable and secure during times of distress and insolvency. Conversely, an insurer with less capital adequacy is at high risk, increased capital cost, and threatens its profit margin. In this field, some researchers, such as Berhe and Kaur (2017) and Taha (2015), demonstrated that capital adequacy was positively related to financial performance.

Investment ratio: By dividing investments by total assets, the investment ratio is calculated. This ratio demonstrates the management's capacity to allocate suitable amounts for investment Ibrahim (2015). The investments generate investment income anticipated to have an optimistic impact on financial performance. Some researchers, viz., Afza and Asghar (2012), Banerjee and Majumdar (2018), revealed that the investment ratio has a significantly positive relationship with financial performance. Banerjee and Majumdar (2018) suggested that the companies should limit their investment into risky asset classes and focus on more government securities/bonds, money, and deposits in their investment mix.

Retention ratio: Ratio is measured as net written premiums by gross written premiums. It is a proportion of underwritten business that is not transferred to reinsurers, which means the percentage of the underwritten risk retained by the insurance firm. The effective insurance business in underwriting choices, accompanied by a greater retention ratio, has greater financial performance (Charumathi, 2012). This is because insurance businesses reinsure some of the risk to decrease the danger of bankruptcy, which includes certain costs. Batrinca & Burca (2014) state that the retention ratio is a significant financial performance determinant.

Tangibility of asset: In most studies, the tangibility in insurance businesses is evaluated by the fixed assets to total assets. The Company with a progressively fixed asset can obtain a minimum interest loan through securities of possessions ownership and current assets (Khan et al., 2017). Therefore, the greatest amount of fixed assets indicates the more prominent and older insurance company.

Loss ratio: In the relevant literature, the loss ratio is a substantial financial performance articulated as an

'underwriting risk'. Loss ratio measured as incurred claims by earned premium. The loss ratio demonstrates how effective insurance companies' underwriting is. Insurance businesses with high loss ratios may be in financial trouble, indicating that they may not collect adequate premiums to cover claims and expenditures. Some researchers in this field, such as Alomari and Azzam (2017) and Berhe and Kaur (2017), loss ratio has a negative impact on financial performance.

Financial leverage ratio: The financial leverage is measured by the average total assets to average equity. This indicates the debt used by the firm to finance its asset, financial dependability, and strength of the insurance company. An insurance firm with higher liability than equity is deemed extremely leveraged, increasing the risk for insurers. Banerjee and Majumdar (2018) findings show that a further rise in leverage will adversely result in financial performance. Most studies show insurance businesses with lower leverage generally have a greater return on assets (ROA). The association between financial leverage and economic performance has been extensively studied, showing the leverage ratio has an adverse relationship.

Liquidity ratio: Most former studies considered liquidity a financial performance indicator for insurers. It is generally evaluated by the current ratio, i.e., current assets to current liabilities. It demonstrates insurers' capacity to quickly turn an asset into money and replicates the company's capability to handle its liquid assets. According to Berhe and Kaur (2017), When an insurer's liquidity ratio is low, the company has trouble fulfilling its short-term requirements. A high liquidity ratio reveals the funds that have been invested in more profitable areas are blocked. The greater liquidity has an adverse stimulus on the economic activity of the insurers.

Reinsurance dependence: The ratio of gross written premiums ceded in reinsurance to total assets is used to calculate reinsurance dependence. According to Ismail (2013) and Batrinca and Burca (2014), to reduce the likelihood of bankruptcy in the occurrence of heavy losses, insurance companies reinsure a part of the underwritten risk. Reinsurance enhances the insurance firm's steadiness by spreading risk, creditworthiness prerequisites accomplishment, balancing risk profiles, and developing underwriting capability, which includes some expenses. Therefore, an adverse link is anticipated between reinsurance dependence and financial performance.

Premium growth rate: The gross written premium is the primary source of revenue derived from the insurance business. The premium growth rate means growth in gross written premium. Gross written premium (GWP) is measured as the percentage growth in gross written premium. With increased underwriting activity and market share, GWP is anticipated to partake a significant impact on monetary performance (Batrinca & Burca, 2014).

The internal aspects, for instance, firm size, capital adequacy ratio, liquidity as well as the age of the firm, and the degree of tangibility of assets are all thought to have an impact on the economic performance of organizations. The literature review also supports the idea that financial leverage, reinsurance dependence, and premium growth rate are all factors that influence financial prospects. Therefore, the ROA is used as a metric for economic performance in several studies. The researchers include Alamro et al. (2012), Mulchandani, et al. (2017), Azmi et al. (2020), Boadi et al. (2013), Mehari and Aemiro (2013), Bilal et al., (2013), Olalekan (2018), Hailegebreal (2016), Cudiamat and Stephen (2017), Guendouz and Ouassaf, (2018) Zainudin et al. (2018).

#### 4. Research Methodology

The research was designed to conduct a quantitative research analysis. SPSS and E view was used for data analysis. This investigation intends to look at the variables that impact the economic performance of insurance firms in India. Our study relies on secondary statistics from insurance companies' financial reports. Financial statements are obtained from individual company websites, while statistical data is obtained from the IRDA website. The study's scope is centered on the insurance industries in India from 2010-2011 to 2019-2020. The research considers 21 insurance firms in India,6 from the public and 15 from the private sectors. We utilize a convenient sampling technique based on the years the insurance company is still operating. 4.1. Model Specification

 $\begin{aligned} &\text{ROA}_{i,t} = \beta 0 + \beta_1 \text{Siz}_{i,t} + \beta_2 \text{CaQ}_{i,t} + \beta_3 \text{LQ}_{i,t} + \beta_4 \text{PGR}_{i,t} \\ &+ \beta_5 \text{RR}_{i,t} + \beta_6 \text{Age}_{i,t} + \beta_7 \text{IR}_{i,t} + \beta_8 \text{TA}_{i,t} + \beta_9 \text{LR}_{i,t} \\ &+ \beta_{10} \text{FL}_{i,t} + \beta_{11} \text{RD}_{i,t} + \varepsilon_{i,t} \end{aligned}$ 

 $\beta_0$  = Constant factor

i = Connotes a particular insurance firm

t = Signify the time for the analysis

 $\beta_1, \beta_2, \beta_3, \beta_4 \dots$   $\beta_{11}$ = Coefficient on independent components.

 $\varepsilon_{it}$  = The error term

#### 5. Data Analysis and Discussions

#### 5.1. Descriptive Statistics

Descriptive statistics examines and summarizes all the variables that were utilized in the study. The mean, minimum, maximum, and standard deviation data are calculated for the reference period. The total number of observations for each variable is 210. The overall mean value of the ROA is 0.67 percent, and the standard variation, which measures the spreading of ROA from the mean, reveals that profitability diverges from its mean by 9.31

#### Table 1

Definitions of Variables

percent. The ROA has a minimum value of -52 percent and a maximum value of about 68.8 percent in the sample. Table 2 shows the data separately for the variables respectively.

#### 5.2. Correlation Analysis

The study used a Pearson Correlation to assess the intensity of the link amid the dependent variable, i.e., ROA, and multiple independent factors. A correlation factor is an arithmetic amount of degree to which differences in one variable forecast changes in the other. The correlation coefficient spans between +1 and -1. According to the findings of the correlation research, there is an optimistic and substantial link between return on assets (a substitute for a firm's financial performance) and premium growth rate, as demonstrated by a strong correlation of 0.503. However, the research also revealed an inverse relationship between ROA and retention ratio, with a correlation value of -.137. In a similar line, the correlation coefficient of -.151 indicates that the link between ROA of insurance firms and liquidity is likewise pessimistic. The correlation matrix, on the other hand, demonstrates that ROA has no relationship with company size,

Abbreviation	Variables Definition			
ROA	Return On Asset	After tax Profit /Total assets		
Siz	Firm's Size	Log of total asset		
LiQ	Liquidity Ratio	Current liabilities / Current assets		
PGR	Premium Growth Rate	Growth in (GWP)gross written premium		
RR	Retention Ratio	Net written premiums / Gross written premiums		
CaQ	Capital Adequacy Ratio	Equity to Total Assets		
TA	Tangibility Of Asset	Fixed asset to Total asset		
LR	Loss Ratio	Net claims incurred / Net earned premiums		
IR	Investment Ratio	Investment/Total asset		
FL	Financial Leverage Ratio	Average total assets/Average equity		
Age	Firm's Age	The difference between the observation year /establishment		
		year of the company		
RD	Reinsurance Dependence	Gross written premium ceded in reinsurance/ Total asset		

capital adequacy, firm age, investment ratio, the tangibility of assets, loss ratio, and reinsurance dependency.

Apart from the correlations among dependent and independent factors, table 4 indicates that a few independent variables were positively linked. For instance, the correlation between investment ratio and capital adequacy is .919. Likewise, the correlation between tangibility and capital adequacy is found to be. 918. Similarly, with a coefficient estimate of .949, two independent variables, reinsurance dependency and investment ratio, were found to be highly correlated with one another.

#### 5.2.1 Multicollinearity Assumptions

To ensure that there is no multicollinearity problem in the regression model settings, it is required to examine the correlation among independent factors. The multicollinearity test determines whether there is a perfect or high correlation between explanatory variables (Daare, 2016). However, as the degree of multicollinearity escalates, the regression

### Table 2 Descriptive Statistics

1					
	Ν	Minimum	Maximum	Mean	Std. Deviation
ROA	210	520000	.688926	.00672751	.093152355
Siz	210	2.88543	281.97158	85.6809375	61.79680533
CaQ	210	.005396	57.052260	1.94021992	7.321922203
RR	210	1992	.9495	.704146	.1543326
Age	210	0	113	28.21	33.399
IR	210	.276450	89.200654	4.66401859	16.949490674
TA	210	.001645	2.584587	.06323319	.223847160
LR	210	.020099	4.042522	.53952494	.558156127
PGR	210	8518	199.4309	1.208108	13.7519420
LR	210	-2.0176	1.4214	.662367	.4770763
FL	210	.017528	185.337600	5.27697343	12.989852687
RD	210	.01509	30.82528	1.2443217	4.68976623
Valid N (listwise)	210				

Source: SPSS Descriptive statistics

#### Table 3

Correlation Matrix of Inte	rnal Variables and	ROA
----------------------------	--------------------	-----

	ROA	Siz	CaQ	RR	Age	R	TA	LR	PGR	LR	F	RD
	1	.090	060	137*	001	014	072	151*	.503**	098	034	032
Sig		.195	.388	.047	.985	.839	.298	.029	.000	.157	.623	.647
Ν	210	210	210	210	210	210	210	210	210	210	210	210

Note: \*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Source: Computed using SPSS

				1							
	Siz	CaQ	RR	Age	R	TA	LR	PGR	LR	Ę	RD
Siz	1										
CaQ	304**	1									
RR	.284**	-0.125	1								
Age	.812**	-0.114	.340**	1							
IR	300**	.919**	-0.093	-0.097	1						
TA	288**	.918**	158*	-0.128	.746**	1					
LR	-0.093	-0.054	-0.044	-0.06	-0.087	-0.011	1				
PGR	-0.09	-0.002	189**	-0.063	-0.016	0.022	0	1			
LR	.245**	299**	.544**	.302**	304**	240**	-0.089	-0.032	1		
FL	.264**	-0.098	0.046	.311**	-0.093	-0.09	-0.059	-0.028	.153*	1	
RD	304**	.945**	145*	-0.111	.949**	.860**	-0.061	-0.018	313**	-0.092	1

Table 4					
Correlation	Matrix	Between	Internal	Independent	Variables

Source: Computed using E Views 7

model predictions of the coefficients become unsteady, and the standard errors for the coefficients become dramatically inflated; the basic assumption of all multiple regression models is that there is no multicollinearity problem.

When the VIF (Variable Inflation Factor) value exceeds 10, multicollinearity arises (Gujarati and Sangeetha, 2008). Using pooled data regression, we checked VIF and identified that certain variables' variance inflation factor value is more than 10. As shown in Table 5, the initial test results reveal that some variables have VIF values greater than 10, indicating that such variables are to be eliminated to prevent the multicollinearity problem. The removed variables are capital adequacy ratio, investment ratio, the tangibility of assets, and reinsurance dependence. The presence of multicollinearity is therefore assessed in the regression model of ROA.

#### 5.3. Regression Analysis

Regression Analysis is used to study the impact of dependent and independent variables. We used an econometric panel model with data regression analysis built into the equations. Panel data analysis can be used to estimate some alternative models (pooled, fixed, and random). It is convenient to use various valuation models that have had the most significant impact, and in several investigations, the better assessing model was embraced as most and illustrated utilization (Hausman and Taylor, 1981). Regression of experimentation while broadening panel dataset case studies, ignoring both cross-sectional and time-series effects and therefore greater perspective into investigational models. Panel data models are used to investigate group, time frame impacts, or both to cope with heterogeneity and specific effects that may not even be detected. There are two categories of effects: fixed and random. A fixed-effect model looks at whether interrupts differ by group or time, although a random effect model looks at variations in error variance elements among people or over time. As a result, ROA's fixed effect and random effect models are developed, as shown in table 6.

#### 5.3.1 Hausman Test (Chi-Square Statistic)

While both fixed and random effects are substantial, the Hausman specification testing will be done to decide which model is more significant and which model is better than the other one. The null hypothesis assumes that the ideal approach is random effects, whereas the alternative hypothesis asserts that the method is fixed. The Hausman test findings are shown in table 7, and the results show that chi-square statistics are substantial at 5%, indicating the rejection of the null hypothesis. As a

Variables	VI	F
	Initial	Final
Siz	3.602	2.969
CaQ	30.841	
RR	1.641	1.574
Age	3.573	3.191
IR	24.993	
ТА	15.226	
LR	1.053	1.017
PGR	1.061	1.050
LR	1.705	1.489
FL	1.132	1.130
RD	22.464	

#### Table 5

Collinearity Diagnostics for ROA Model

Source: Computed by using SPSS

#### Table 6

Fixed and Random Effects Model

	Fixed E	ffect	Random	Effect	
Variable	Coefficient	Prob.	Coefficient	Prob.	
Siz	-0.0010	0.0442	0.0005	0.0103	
RR	0.1355	0.0049	0.0735	0.0744	
Age	0.0128	0.0003	-0.0005	0.1741	
LR	-0.0151	0.3659	-0.0303	0.0059	
PGR	0.0049	0.0000	0.0042	0.0000	
LR	-0.0640	0.0036	-0.0374	0.0161	
FL	-0.0002	0.5318	-0.0002	0.6088	
Constant	-0.3183	0.0000	-0.0339	0.2630	
R-squared	0.62	19	0.4281 (	0.000)	
F-statistic	11.0871 (	(0.000)			
Hausman test		47.997	79 (0.000)		
Durbin-Watson stat	1.31754				

Source: Computed using E Views 7

result, it is evident that the random effect model is not an acceptable measure, and the fixed effect model is appropriate for studying the ROA model. While the significance level of Hausman test is below 0.05, fixed effect model is appropriate. Therefore, ROA is significantly impacted by the fixed effect model at a level of 5 %.

In table 6, Fixed effect models R-square indicates how well the independent factors predict the dependent variable. The R-square value derived from the output indicates that the independent variables, namely size, loss ratio, firm age, premium growth, and retention ratio employed in this study, explained 62.19 % of the ROA. In comparison, the remaining 37.81 % is attributed to other determinants. The Durbin-Watson test resulted in a score of 1.31, indicating no evidence of autocorrelation. In addition, the model's F-statistics probability was 0 (less than the 0.05 significant threshold), indicating that the model is an "excellent fit".

	Correlated Random Ef	fects - Hausman Test	
	Test cross-section	random effects	
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob
Cross-section random	47.99785	7	0.000

#### Table 7

Hausman Test

Source: Computed using E Views 7

#### 6. Result and Discussion

According to the findings of the panel data regression model, company size has a negative and statistically substantial influence on the profitability of India's general insurance market. The organization's size is inversely associated with the profitability of the company. Profitability declines as an insurance firm raises in size, implying diseconomies of scale, for instance the insurance commission's stricter regulation of large companies. When a colossal asset base provides organizations with resources envisioned for expansion, those assets are halted (e.g., kept back in a preserve) or not utilized efficiently, resulting in higher profits and diseconomies emerging. Increased company size and asset base may reduce profitability due to low returns on assets invested by insurers and inefficiencies in managing a large company. Some studies in this sector, like Murigu and Mwangi (2015), Cudiamat and Stephen (2017), and others, have found that the size of the insurance business has a negative relationship with financial performance.

The retention ratio suggests a strong link between retention ratio and ROA. In terms of underwriting choices, the most effective insurance companies, accompanied by a higher retention ratio, have better financial performance. Augustine and Lukmon (2017), Batrinca and Burca (2014) discovered that the retention ratio was significantly associated with financial performance.

The firm's age has a positive effect on ROA. With an increase in the number of years of operation for insurance firms that operate in the industry, both experience and reputation in the business will grow. It advocates that having more experience leads to better present performance. Researchers such as Barua et al. (2018) and Guendouz and Ouassaf (2018) revealed that age has a substantial and positive impact on profitability.

The rate of premium increase has a favorable and statistically significant influence on financial performance. The upsurge in premium growth rate will confirm the company's growth and boost market share. Beyond that, the gain in premiums received has a beneficial influence on the development of the performance of nonlife insurance in India. High premiums increase liquidity and the ability to invest more, which improves insurer profitability. Some investigations in this domain, such as Kozak (2011), Rashid and Kemal (2018), and Hailegebreal (2016), demonstrate that premium growth rate is positively related to financial efficiency.

In the related literature, the loss ratio is a crucial indicator articulated as an 'underwriting risk'. ROA is adversely exacerbated by the loss ratio; this means that insurers who write riskier business (such as catastrophe insurance) must use effective management practices to reduce the risk of underwriting losses ex-ante and maximize profits on invested assets ex-post. Excessive risk-taking may have a negative impact on insurance company performance. According to certain researchers in this field, including Alomari and Azzam (2017), Berhe and Kaur (2017), and Guendouz and Ouassaf (2018) the finding is similar.

Contrariwise, other factors have no impact on the levels of performance of general insurance firms. The firm's liquidity is not a vital predictor of the insurance sector's profitability and has an inverse connection with profitability. This inverse connection makes insurance companies with higher current ratios less lucrative. The link between financial leverage is negative and has no noteworthy influence on financial performance. However, insurance companies should avoid taking on too much debt, jeopardizing their long-term viability. If a company is highly leveraged, it may face bankruptcy if it cannot make payments on its debt.

#### 7. Concluding Remarks

General insurance firms play an essential part in a country's growth. However, the profitability of such businesses is not invincible to the influence of internal variables. This study aims to fill a gap in the literature by giving new empirical information on the aspects that impact India's general insurance industry's financial performance. General insurance businesses can utilize the findings of this study to help them make decisions about how to improve their financial performance. ROA assists stakeholders in determining how management utilizes its assets or funds to create more profits. Without profits, insurers will not be able to attract outside capital to meet the requirements of their business. This is an essential step in sustaining a healthy and profitable business (Murigu & Mwangi, 2015). Companies may enhance their financial earnings by planning, evaluating, and establishing financial strategies based on the relationship between significant elements and financial performance. To enhance their financial performance, general insurers should focus on micro-level criteria such as size, loss ratio, age, premium growth, and retention ratio. Internal factors such as financial leverage and liquidity situations can be controlled by company managers. Finally, substantial empirical research is needed to investigate regulatory, managerial, and macroeconomic variables that influence insurance business performance in India.

For the context of this research, the time horizon considered was ten years, namely 2010-2011 to 2019-2020. The study did not consider all the internal factors. The study's model concentrated on firm-specific aspects of general insurers' financial performance in India. Other determinants, such as macroeconomic factors, were excluded from the study. As a result, industry and macroeconomic determinants were not considered in this study.

Further research should be conducted similarly,

involving both general and life insurers. Then, an analysis should be performed jointly and separately for the two types of insurers. A larger sample size over a more extended period can produce better results. Furthermore, cross-section studies can be conducted among countries to compare their performance. In the future, studies should incorporate panel data and macroeconomic determinants of the financial performance of insurance firms in India.

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