



## **Factors Impact the Financial Performance of Life Insurance Companies in Sri Lanka during the COVID-19 Pandemic**

**PSNN Kumararathna and HJR Buddhika\***

*Department of Finance, Faculty of Commerce and Management Studies, University of Kelaniya, Sri Lanka*

### **ABSTRACT**

The main purpose of this research study is to find the key determinants that affect the financial performance of the life insurance industry during the COVID-19 pandemic. This study examines the impacts of the COVID-19 epidemic on the financial performance (ROA and ROE) of the Sri Lankan life insurance sector. The researcher used six listed life insurance companies in the Colombo Stock Exchange. The scholar used the pooled regression method to analyze and evaluate the study. The research study sample includes quarterly data from 2017 to 2022. The researcher population as the sample. The scholar used E-views software to analyze the data. The findings of the research study concluded that there is a significant impact of determinants of financial performance towards the Sri Lankan life insurance industry during the COVID-19 pandemic and pre-COVID-19 period. However, the impact is higher in the pre-COVID-19 phase than during COVID-19.

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*E-mail Address:*  
buddhikar@kln.ac.lk

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## INTRODUCTION

The rising spread of infectious diseases has been attributed to many factors, including changes in human behavior, resurgent pathogens, incorrect use of antibiotics, globalization, increased travel and trade, urbanization, populous cities, and changes in travel and trade (Shang et al., 2021). The recent COVID-19 virus epidemic demonstrates how readily infectious diseases can endanger the stability of the economy by spreading swiftly in open economies. COVID-19 is a worldwide pandemic which will greatly affect people's behavior. As of early 2024, there were more than 704.75 million confirmed COVID-19 cases worldwide, with over 7.1 million deaths (World Health Organization, 2024). The COVID-19 pandemic is characterized by sudden outbreaks and damage to the human lungs, gastrointestinal system, olfactory sensation and pancreas, which causes the high infection rate and morbidity of COVID-19. Moreover, the factors that affect the incidence and severity of COVID-19 are not clear, and there is no standard antibody test for detecting COVID-19 antibodies during or after exposure or infection, which can lead to people's perception of the high risk of infection and even death, especially when there are confirmed cases in a local city.

In the end, measures like social distancing, avoiding pointless travel, prohibiting gatherings, and even imposing lockdown restrictions seriously harmed the global economy. According to World Bank predictions, the pandemic's deep recessions will likely cause long-term damage due to decreased investment, a decline in human capital from lost jobs and education, and a breakup of international supply chains and trade.

Similar findings were also observed in the economy of Sri Lanka. The economy was negatively damaged by periodic curfews, lockdowns, and travel bans for foreigners, which resulted in a decline in tourism, remittances, and foreign investment outflow. Investors became extremely uneasy, and the capital market reflected this. Trading at the Colombo Stock Exchange was suspended on March 10, 2020, after the S&P SL20 index, which measures more liquid equities, dropped by 5.01% (Adhikari & Buddhika, 2023). Ten minutes into trade, there was a 5% decline. It was thought to be brought on by a fear of foreign investors pulling out of riskier investments.

Globally, the epidemic has resulted in a sharp decline in human life expectancy and poses an unparalleled threat to food systems, public health, and the workplace. The economic and social dislocation produced by the epidemic is devastating: tens of millions of people are at risk of falling into extreme poverty, while the number of undernourished people, presently estimated at almost 690 million, might increase by up to 132 million by the end of the year. There is an existential threat facing millions of organizations. Approximately 50% of the 3.3 billion people who work worldwide are in danger of losing their jobs. Workers in the informal economy are especially vulnerable as they do not have access to social security or decent health care and have also lost their productive assets. Risk and uncertainty are related to all human beings (Jadi, 2015). This concept is the foundation of Insurance. The Insurance industry is an important and growing part of the financial sector in almost all developed and developing countries. It plays a vital role in the operation of the economy. It can significantly contribute to economic growth, reduction of transaction costs and efficient resource allocation through a transfer of risk and mobilization of savings. Insurance companies help people tolerate risk and uncertainty. When we consider the general insurance industry, they give financial support to recover property damage and accidents. Nevertheless, when considering the life insurance sector, they give financial compensation for the risk of loss of lives and uncertain events from unexpected events (Jadi, 2015).

The study is based on the life insurance sector out of the life and general section. Life insurance provides financial compensation for our beneficiary as a death benefit. Simultaneously, it is a very important financial contract due to the risk and uncertainty of human life. In today's life, anyone might face unexpected events. Therefore, it is very important to ensure consumer safety and solvency using financial protection such as life insurance.

Financial performance is one of the key measurements to evaluate how well an organization uses its resources to generate profit. It is more important for all financial institutions and insurance companies to be part of it. Profitability, Liquidity and Solvency are also various terms expressed by the financial performance of the insurance companies. While considering the financial sector of Sri Lanka is one of the well-structured sectors with a lot of institutions and instruments. The insurance sector is one of them.

However, regrettably, the entire world faced a formidable obstacle in 2020 as a global. This pandemic is called COVID-19. *“The insurance sector must deal with challenging market conditions and maintain operations while at the same time protecting employees and policyholders,”* said Gabriel Bernardino, head of EIOPA. The current state of affairs brought on by COVID-19 is causing an economic downturn, especially in the world's developed economies.

In 2020, the COVID-19 pandemic significantly impacted peoples' lives globally as well as the economy. It additionally impacted the Sri Lankan insurance industry. The effect of this pandemic affects the short and long-term financial outlook of insurers. By considering all these factors, the researcher will study the key determinants of the financial performance of the Sri Lankan life insurance industry during the COVID-19 pandemic.

To address the issue, the following research question was formulated, *“What are the factors that impact financial performance during the COVID-19 pandemic of Life Insurance firms?”* This attempts to obtain an overall view of the financial performance of the life insurers licensed to operate in Sri Lanka. This research study is designed based on five main research objectives.

- To identify the impact of the Debt Ratio on financial performance during the COVID-19 pandemic.
- To identify the impact of the Reinsurance Ratio on financial performance during the COVID-19 pandemic.
- To identify the impact of Investment Ratio on financial performance during the COVID-19 pandemic.
- To identify the impact of the firm's leverage ratio on financial performance during the COVID-19 pandemic.
- To identify the impact of Solvency Margin on financial performance during the COVID-19 pandemic.

As a result of the COVID-19 outbreak, many challenges and opportunities came to the Sri Lankan insurance market. Lockdowns and other travel restrictions measures imposed by the government declined the demand for general insurance products. The life insurance industry grew as the total

premium income was greater than before by 15.98%, outstanding the LKR 100 billion mark for the first time in Sri Lankan history. The total number of long-term insurance policies in force increased to 3,593,454, displaying a growth rate of 6.21%. The new policies issued a market of 739,784 in 2020, with significant expansion compared to 2019 despite the tasks emanating from the COVID-19 outbreak (IRCSL,2020). There are limited research studies that prove the circumstances of the life insurance industry in the Sri Lankan context.

The analysis will attempt to provide better insight into the financial performance of the Sri Lankan life insurance industry, which is provided by its financial performance rating. Financial performance is a concept usually under the scope of finance of an organization and is considered a core function of a particular entity. Hence, the findings of this research could be used as a guidance and key measurement for the life insurance companies operating in Sri Lanka.

Simultaneously, this research study also considers the COVID-19 pandemic. Therefore, we analyzed this as a comparative research study to succeed in our objectives. The two crucial periods. pre-pandemic and during the COVID-19 pandemic were considered for the analysis. It is of special importance to this study. This comparative research study provides better insight into the financial performance of life insurance companies.

## **LITERATURE REVIEW**

Life insurance is a significant risk transfer mechanism technique and social security. They undertake long-term responsibilities. The financial health of the life insurance sector is very critical. The various determinants affect the financial health of life insurance companies (Mulchandani et al., 2016). Life insurance is a kind of investment for the policyholders. It creates personal savings. The Sri Lankan insurance market is consistent with twenty-seven insurance companies and sixty-eight insurance brokering companies by the end of 2020 (IRCSL, 2020). The thirteen insurance companies are providing life insurance. KPMG Sri Lanka (2020) reports that the COVID-19 outbreak, by the end of 2019, established its status as a global pandemic by March 2020. It has significant distribution in the economy. KPMG Sri Lanka (2021) reports that the insurance companies in Sri Lanka are a key component of the financial stability of the country by under the number of premiums it collected in 2020

of Rs.209 bn. KPMG Sri Lanka's (2021) report also provided the value of assets on their balance sheet of the Insurance Industry in Sri Lanka, which equals Rs. 796 bn.

The life insurance sector is one of the most significant risk transfer mechanism techniques and social security. Policyholders undertake long-term responsibilities. The financial health of the life insurance sector is very critical. The various determinants affect the financial health of life insurance companies (Mulchandani et al., 2016). Life insurance is a kind of investment for policyholders. It creates personal savings.

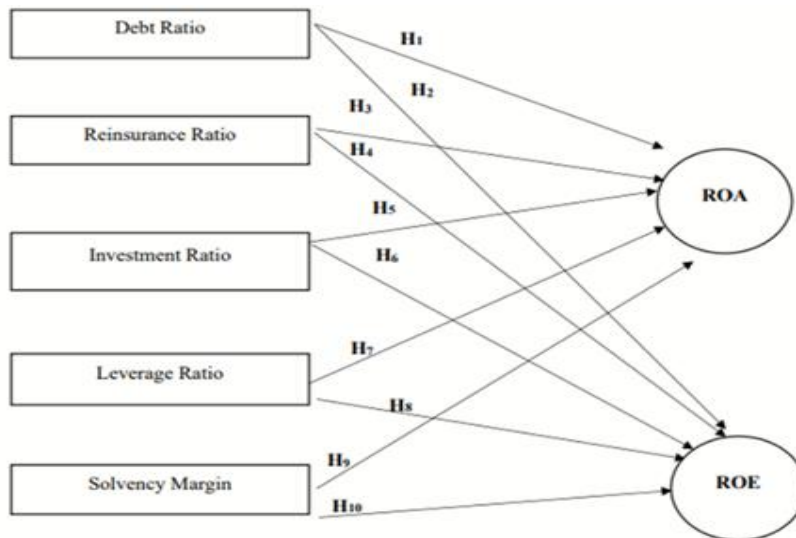
The COVID-19 pandemic started in November in Wuhan, China. After that, it spread all around the world step by step. It affected all economic and non-economic backgrounds of the world., Due to the pandemic, there has been a global increase in both loss of lives and jobs. The pandemic changed the system of the corporate world. It slackens down business operations due to travel restrictions and lockdowns. The majority of businesses followed digitalization. This COVID-19 affected the global supply chain. It delayed the shipment of major goods and services, including food and medicines. The IRCSL statistical review (2020) reported that the Sri Lankan economy also contracted by 3% in 2020 due to this COVID-19 outbreak. Due to this pandemic, many small and medium businesses shut down temporarily and permanently. The COVID-19 pandemic created various challenges for the insurance industry with the lockdowns and restrictions. On the contrary, the pandemic has also created opportunities. Accordingly, according to the IRCSL statistical review (2020), general insurance reported a negative premium growth. Nevertheless, when we look at the long-term insurance sector, we can clearly understand that the premium income has increased by 15.8% compared to 2019. ICSL statistical review report in 2019 showed that premium growth had increased only from 10.58%. In 2020, the life insurance industry grew for the first time in Sri Lankan insurance history.

## **METHODOLOGY**

Research approaches should be determined by considering the scope and limitations to conduct and achieve the research objective. Every researcher considers mainly two types of research approaches the quantitative approach and the qualitative approach. The researcher followed a quantitative approach for this research study. This approach highlights that the scholar should

conduct the research activities based on the quantitative data and use mathematical models and techniques to examine the relationship between the dependent and independent variables.

**Figure 1:** Conceptual Framework



This study intends to investigate the financial stability of the Sri Lankan Life insurance industry during the COVID-19 Pandemic. The study was divided into two periods for better output: before the COVID-19 pandemic and during the COVID-19 pandemic. The scholar considered the quarterly data to achieve the above target. The main limitation is that there was not enough annual data to consider during the pandemic. However, CSE-registered companies only issued their quarterly financial reports. In Sri Lanka, there are only 06 (six) life insurance companies registered under the Colombo Stock Exchange. Therefore, the researcher selected the entire population of 06 (six) companies as the sample. These companies represent an average of 40% of the Sri Lankan Life insurance industry. There are two companies among the top five market leaders in the life insurance industry in Sri Lanka namely, Softlogic Life Insurance and Union Assurance PLC and the rest include Amana Life PLC, Arpico Insurance PLC, HNB Life Insurance PLC, and Janashakthi Life Insurance PLC.

The study is based on secondary data collected from the quarterly reports of all the CSE-registered life insurance companies, IRCSL annual reports and statistical review reports. The researcher considers the two periods before the

COVID-19 pandemic and during the COVID-19 pandemic. From the first quarter of 2020 to the second quarter of 2022 is considered as during the COVID-19 pandemic. From the first quarter of 2017 to the fourth quarter of 2019 is considered as the pandemic period. The researcher has collected the data for all these quarters. Data analysis of the research expects to find the relationship between the dependent variables and the independent variables, as mentioned in the conceptual framework. The researcher collects quarterly data from 2017 to 2022. The researcher uses quantitative data analysis based on mathematical and statistical models. For that purpose, it is used in E-Views Software to analyse the secondary data and derive the conclusion and recommendation. The two models for ROE and ROA are given below.

$$\text{Model 01 - ROE} = \beta_0 + \beta_1 \text{REIS}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{DEBT}_{it} + \beta_4 \text{INV}_{it} + \beta_5 \text{SOM}_{it} + e$$

$$\text{Model 02 - ROA} = \beta_0 + \beta_1 \text{REIS} + \beta_2 \text{LEV} + \beta_3 \text{DEBT} + \beta_4 \text{INV} + \beta_5 \text{SOM} + e$$

Where, ROA = Return on Assets, ROE = Return on Equity,  $\beta_0$  = Intercept, REIS = Reinsurance Ratio, LEV = Leverage Ratio, DEBT = Debt Ratio, INV = Investment Income Ratio, SOM = Solvency Margin, e = Error Term

The following hypotheses will be tested in accordance with the statement of research problems and the objectives of this thesis.

H1: There is a significant positive impact from the Debt Ratio to Return on Assets during the COVID-19 pandemic.

H2: There is a significant positive impact from the Debt Ratio to Return on Equity during the COVID-19 pandemic.

H3: There is a significant positive impact from the Reinsurance Ratio to Return on Assets during the COVID-19 pandemic.

H4: There is a significant positive impact from the Reinsurance Ratio to Return on Equity during the COVID-19 pandemic.

H5: There is a significant positive impact from the Investment Ratio to the Return on Assets during the COVID-19 pandemic.

H6: There is a significant positive impact from the Investment Ratio to Return on Equity during the COVID-19 pandemic.

H7: There is a significant positive impact from the leverage ratio to Return on Assets during the COVID-19 pandemic.



H8: There is a significant positive impact from the leverage ratio to Return on Equity during the COVID-19 pandemic.

H9: There is a significant positive impact from the Solvency Margin to Return on Assets during the COVID-19 pandemic.

H10: There is a significant positive impact from the Solvency Margin to Return on Equity during the COVID-19 pandemic.

## RESULTS AND DISCUSSION

### Descriptive Statistics

Table 1 shows the descriptive statistics. As per the methodology, the panel consists of a sample of six-year quarterly data selected from six life insurance organizations in Sri Lanka for the periods from 2017 to 2022 (pre-COVID-19 period).

**Table 1:** Descriptive Statistics

	ROE	ROA	REIS	LEV	INV	DEBT	SOM
<b>Mean</b>	0.1223	0.0373	0.0435	2.9594	0.2749	0.7069	<b>0.0585</b>
<b>Median</b>	0.0471	0.0103	0.0462	2.7201	0.3278	0.7312	<b>0.0139</b>
<b>Maximum</b>	1.2994	0.4907	0.2039	10.0866	0.5741	0.9098	<b>1.0014</b>
<b>Minimum</b>	-0.0248	-0.0065	-0.1263	1.1358	-0.0046	0.5318	<b>-0.0144</b>
<b>Std. Dev.</b>	0.2340	0.0857	0.0457	1.7178	0.1621	0.1042	<b>0.1463</b>
<b>Skewness</b>	3.8721	4.4820	-0.6791	1.5718	-0.3259	-0.1027	<b>4.9446</b>
<b>Kurtosis</b>	18.3562	23.3143	7.1119	6.4556	1.8756	1.7306	<b>27.8608</b>
<b>Jarque-Bera</b>	1626.82	2711.64	103.14	120.03	9.29	9.09	<b>3937.22</b>
<b>Probability</b>	0.000	0.000	0.000	0.000	0.010	0.011	<b>0.000</b>
<b>Sum</b>	16.1496	4.9200	5.7362	390.6452	36.2820	93.3123	<b>7.7186</b>
<b>Sum Sq. Dev.</b>	7.1744	0.962414	0.273142	386.5682	3.44028	1.4221	<b>2.80356</b>
<b>Observations</b>	<b>132</b>	<b>132</b>	<b>132</b>	<b>132</b>	<b>132</b>	<b>132</b>	<b>132</b>

Source: Author Compiled (2023)

The results produced from descriptive statistics are as follows. Descriptive statistics are used to quantify central tendency, variability, and dispersion. Measurements of central tendency include mean, median, and mode, while measurement of variability includes standard deviation, minimum and maximum values, Kurtosis, and Skewness to assess the overall research's behavior. The mean value of ROE is 0.1223, while the maximum and minimum values lie at 1.2994 and -0.0248, respectively. ROA has a mean value of 0.0373 and a range of 0.4907 and -0.0065 at its maximum and minimum, respectively. The mean value of REIS is 0.0435, while the maximum and minimum values are 0.2039 and -0.1263, respectively. LEV range at its maximum and minimum is 10.0866 and 1.1358, respectively, with a mean value of 2.9594. INV has a mean value of 0.2749 and a range of 0.5741 -0.0046 at its maximum and minimum, respectively, while DEBT indicates 0.7069 as its mean value and maximum and minimum values lie on 0.9098

and 0.5318, respectively. Finally, the mean value of SOM is 0.0585, while maximum and minimum values are 1.0014 and -0.0144, respectively. The Jarque-Bera test measures whether residuals are normal distribution for each variable. According to that, the probability values of each variable are less than 5%, which emphasizes that variables are not normally distributed. Asymmetry from the normal distribution is referred to as skewness in statistics. Skewness has a zero skewness in the normal distribution, but in practice, data points may not be entirely symmetrical. When considering the skewness of all variables, ROE, ROA, LEV and SOM are negatively skewed, while the rest of the variables are positively skewed. The standard deviation is the most commonly used measure of dispersion, or how far off the data is from the mean. A large standard deviation implies that the data points might deviate significantly from the mean, whereas a small deviation suggests that the data collection is centered on the mean. All the independent and dependent variables in this study have a low standard deviation, indicating that the data set is clustered around the mean.

### Correlation Matrix

The graph depicts the relationship between the independent and dependent variables. The aforesaid study is useful in determining the association between the variables in the model. Accordingly, the investment ratio (INV) and solvency margin (SOM) have a positive impact on both return on equity and return on assets, while the re-insurance ratio (REIS), leverage ratio (LEV), and debt ratio (DEBT) have a negative impact on both returns on equity and return on assets.

**Table 2:** Correlation Matrix

	<b>ROE</b>	<b>ROA</b>	<b>REIS</b>	<b>LEV</b>	<b>INV</b>	<b>DEBT</b>	<b>SOM</b>
<b>ROE</b>	<b>1</b>	0.89270	-0.01684	-0.07180	0.04835	-0.07942	<b>0.93065</b>
<b>ROA</b>	0.89270	<b>1</b>	-0.12670	-0.21494	0.10978	-0.23475	<b>0.96268</b>
<b>RR</b>	-0.01684	-0.12670	<b>1</b>	0.15285	-0.16717	0.19547	<b>-0.08138</b>
<b>LR</b>	-0.07180	-0.21494	0.15285	<b>1</b>	0.07022	0.90338	<b>-0.20331</b>
<b>IR</b>	0.04835	0.10978	-0.16717	0.07022	<b>1</b>	0.07073	<b>0.12001</b>
<b>DR</b>	-0.07942	-0.23475	0.19547	0.90338	0.07073	<b>1</b>	<b>-0.23509</b>
<b>SM</b>	<b>0.93065</b>	<b>0.96268</b>	<b>-0.08138</b>	<b>-0.20331</b>	<b>0.12001</b>	<b>-0.23509</b>	<b>1</b>

Source: Author Compiled (2023)

The correlation coefficient between the re-insurance ratio (REIS) and the leverage ratio (LEV), investment ratio (INV), debt ratio (DEBT) and solvency margin (DEBT) is 0.15285, -0.16717, 0.19547 and -0.08138 respectively. So, it shows that there is a weak positive correlation between REIS and LEV, REIS and DEBT respectively while REIS has a negative weak relationship with INV and SOM.

The result shows that there is a weak positive correlation between LR and IR since the value is 0.07022. However, LEV and DEBT evidenced that there is a high

correlation underlying the selected pair since the correlated value is 0.90338. Further, it shows a negative, weak relationship between LEV and SOM since the value is -0.20331. The correlation between INV & DEBT and INV & SOM is positive but weak since values are 0.07073 and 0.12001, respectively. Finally, the correlation coefficient between DEBT and SOM is -0.23509. The result shows a weak negative correlation between the two variables. According to the results, there is no significant correlation between independent variables (no multicollinearity) except the relation between LEV and DEBT. Therefore, all the variables have been continued for multiple regression.

### Multicollinearity

The fundamental assumption of ordinary least squares is that variables should not be multicollinear. Due to the significant correlation between explanatory variables, multicollinearity is a concern in the model. If the model has a multicollinearity problem, it may produce a misleading F value, T-test, and significance level. As a result, it is critical to check that the model is free from multicollinearity.

**Table 3:** Multicollinearity Test

Explanatory variable	VIF	Tolerance
REIS	1.08	0.925996
LEV	5.46	0.183245
INV	1.06	0.943028
DEBT	5.64	0.177459
SOM	1.08	0.925505
Mean VIF	2.86	

Source: Author Compiled (2023)

To investigate the existence of multicollinearity, the researcher uses the Variance Inflation Factor (VIF) and the tolerance criterion. Variables are free of multicollinearity if VIF is equal to or close to 1 (tolerance less than 0.2). If VIF is close to 10, all or part of the explanatory variables have a multicollinearity problem. The VIF value for each variable is derived from the model's coefficient table, which contains three explanatory variables. Table 3 demonstrates that tolerance values are larger than 0.2 and VIF values are fewer than 10. This demonstrates that multicollinearity does not exist among independent variables.

### Chow Test

A structural break in a series of data is typically caused by a change in policy or an unexpected shock to the economy, such as the 1987 stock market crash. The Chow test is frequently used to detect structural breaks. In practice, the model employs an F-test to assess whether a single regression is more effective than two separate regressions that require dividing the data into two sub-samples.

**Table 4:** Chow Test Result

Model	F – Calculated	F- Critical	Result
ROE	17.24	2.67	Reject the Null
ROA	11.63	2.67	Reject the Null

Source: Author Compiled (2023)

H0: There is no significant improvement in fit from running two regressions.

H1: There is a significant improvement in fit from running two regressions.

According to the result of the Chow test, the F-critical value is less than the F-calculated value under both models which suggests rejecting the null that there is no significant improvement in a fit running two regressions. Therefore, two separate regressions will be carried out on the data before and during the structural break for each model.

### Autocorrelation

Another fundamental OLS assumption is that the model is free from autocorrelation. The cross-correlation of a signal with itself at various points in time is known as autocorrelation. It is just the similarity of observations as a function of their distance in time. It is a technique used in mathematics to identify recurring patterns. Using the Durbin-Watson value, the researcher checks to see if the model has autocorrelation. The rule of thumb is that no autocorrelation is related to the model, and Durbin Watson's value should be equal to 02 or close to 02. According to the results, there is no autocorrelation.

**Table 5:** Durbin-Watson (DW) Test Result

Model	Period	DW Statistic	Result
ROE	Before COVID-19	2.12	Autocorrelation does not exist since the DW figure is closer to 02.
	During COVID-19	2.11	Autocorrelation does not exist since the DW figure is closer to 02.
ROA	Before COVID-19	1.80	Autocorrelation does not exist since the DW figure is closer to 02.
	During COVID-19	2.03	Autocorrelation does not exist since the DW figure is closer to 02.

Source: Author Compiled (2023)

## Normality Testing

The normalcy distribution is one of the basic OLS presumptions. “(ut  $N(0, 2)$ ” is the normalcy assumption, according to Brooks (2008). is required to do both group and individual hypothesis testing for the model parameters. One of the most popular tests to check for normalcy is the Jarque-Bera (JB). JB uses the property of randomly distributed data that is normally distributed, where the variance and mean, the first two moments, define the entire distribution (Brooks, 2008). The JB normality test was employed by the researcher to examine the null hypothesis, which posited that the mistakes in this study were normally distributed.

**Table 6:** Normality Summary Test Result

Explanation	Jarque Bera	Probability
ROE -pre-COVID-19	61.75282	0.260041
ROE -During-COVID_19	704.1169	0.085190
ROA- pre-COVID-19	107.7688	0.181275
ROA - During-COVID-19	165.4673	0.080019

Source: Author Compiled (2023)

The above table represents the Jarque Bera and probability values. Furthermore, as probability values are less than 0.05, the histogram statistics were not significant at 5%. Therefore, it is difficult to rule out the null hypothesis that the error term is normally distributed. As a result, the error term follows the normal distribution in each situation.

## Regression Results

The result of the regression model is shown as follows. The model shows the Determinants of the Financial Performance of the Sri Lankan Life Insurance Industry During the COVID-19 Pandemic.

**Table 7:** Model-01: ROE – pre-COVID-19 Pandemic

ROE <sub>pit</sub> = $\alpha + \beta_1REIS + \beta_2LEV + \beta_3INV + \beta_4DEBT + \beta_5SOM + \mu$				
	Coefficient	Std. Error	t-Statistic	Prob.
<b>C</b>	-0.79467	0.158542	-5.01239	0.0000
<b>REIS</b>	-0.00324	0.237158	-0.01366	0.9891
<b>LEV</b>	-0.03113	0.009344	-3.33136	0.0015
<b>INV</b>	0.124733	0.090278	1.381653	0.1721
<b>DEBT</b>	1.261869	0.260099	4.8515	0.0000
<b>SOM</b>	1.483592	0.04474	33.16021	0.0000
<b>R-squared</b>	0.96745		F-statistic	181.3027
<b>Adjusted R-squared</b>	0.962114		Prob(F-statistic)	0.000000
<b>S.E. of regression</b>	0.055896		Durbin-Watson stat	2.123582

Source: Author Compiled (2023)

The coefficient of multiple determinations  $R^2$  suggests the model is fit, with all independent variables accounting for 96.74% of the variances in ROE. The pre-

COVID-19 period explains 97% of COVID-19 periods and it indicates 74%, which showed some COVID-related variables have impacted the performance.

**Table 8: Model-01: ROE - During the COVID-19 Pandemic**

ROE <sub>dit</sub> = $\alpha$ + $\beta_1$ REIS + $\beta_2$ LEV + $\beta_3$ INV + $\beta_4$ DEBT + $\beta_5$ SOM + $\mu$				
	Coefficient	Std. Error	t-Statistic	Prob.
<b>C</b>	-0.07483	0.144775	-0.51684	0.6074
<b>REIS</b>	-0.05797	0.191377	-0.30293	0.7631
<b>LEV</b>	0.031803	0.018534	1.715909	0.0919
<b>INV</b>	0.050924	0.060342	0.843927	0.4024
<b>DEBT</b>	-0.06406	0.274753	-0.23316	0.8165
<b>SOM</b>	3.329011	0.296359	11.23302	0.0000
<b>R-squared</b>	0.739557		F-statistic	30.66774
<b>Adjusted R-squared</b>	0.715441		Prob(F-statistic)	0.000000
<b>S.E. of regression</b>	0.071143		Durbin-Watson	2.109121

Source: Author Compiled (2023)

The coefficient of multiple determinations  $R^2$  suggests the model is fit, with all independent variables accounting for 73.95% of the variances in ROE. The standard error of the model is approximately closer to zero; it can be assumed that they are more accurate.

**Table 9: Model-02: ROA – pre-COVID 19 Pandemic**

ROA <sub>pit</sub> = $\alpha$ + $\beta_1$ REIS + $\beta_2$ LEV + $\beta_3$ INV + $\beta_4$ DEBT + $\beta_5$ SOM + $\mu$				
	Coefficient	Std. Error	t-Statistic	Prob.
<b>C</b>	-0.142807	0.07201	-1.9831	0.0519
<b>REIS</b>	-0.51339	0.107718	-4.7661	0.0000
<b>LEV</b>	-0.00777	0.004244	-1.8297	0.0722
<b>INV</b>	-0.03794	0.041005	-0.9252	0.3585
<b>DEBT</b>	0.299369	0.118138	2.53406	0.0139
<b>SOM</b>	0.537943	0.020321	26.4720	0.0000
<b>R-squared</b>	0.955928		F-statistic	132.309
<b>Adjusted R-squared</b>	0.948703		Prob(F-statistic)	0.000000
<b>S.E. of regression</b>	0.025388		Durbin-Watson stat	1.803844

Source: Author Compiled (2023)

The coefficient of multiple determinations  $R^2$  suggests the model is fit, with all independent variables accounting for 95.59% of the variances in ROA. The pre-COVID-19 Period explains 96% of COVID-19 periods and it indicates 64%, which showed some COVID-related variables have impacted the performance.

**Table 10: Model-02: ROA - During COVID-19 Pandemic**

ROA <sub>dit</sub> = $\alpha$ + $\beta_1$ REIS + $\beta_2$ LEV + $\beta_3$ INV + $\beta_4$ DEBT + $\beta_5$ SOM <sub>it</sub> + $\mu$				
	Coefficient	Std. Error	t-Statistic	Prob.
<b>C</b>	-0.02456	0.018093	-1.357453	0.1803
<b>REIS</b>	0.007322	0.023917	0.306124	0.7607
<b>LEV</b>	-0.00589	0.002316	-2.54261	0.0139
<b>INV</b>	-0.00231	0.007541	-0.30638	0.7605
<b>DEBT</b>	0.068369	0.034337	1.991157	0.0515
<b>SOM</b>	0.311192	0.037037	8.402263	0.0000
<b>R-squared</b>	0.638791		F-statistic	19.09958
<b>Adjusted R-squared</b>	0.605346		Prob(F-statistic)	0.000000
<b>S.E. of regression</b>	0.008891		Durbin-Watson stat	2.030013

Source: Author Compiled (2023)

The coefficient of multiple determinations  $R^2$  suggests the model is fit, with all independent variables accounting for 63.87% of the variances in ROA. The probability value of F-statistics suggests 0.00000 since it shows that the entire model is significant at the 5% level. Therefore, these findings conclude that pre-COVID-19 determinants of financial performance significantly impacted the Sri Lankan life insurance industry during the COVID-19 pandemic and the pre-COVID-19 period. However, the impact is higher in the pre-COVID-19 phase compared to during the COVID-19 period.

**Table 10:** Comparative Analysis of Model Outcomes

Model	Period	Explanatory Power of the Model ( $R^2$ )	Explanation
ROE	Before COVID-19	96.74%	The coefficient of multiple determinations $R^2$ suggests the model is fit, with all independent variables accounting for 96.74% of the variances in ROE.
	During COVID-19	73.95%	The coefficient of multiple determinations $R^2$ suggests the model is fit, with all independent variables accounting for 73.95% of the variances in ROE.
ROA	Before COVID-19	95.59%	The coefficient of multiple determinations $R^2$ suggests the model is fit, with all independent variables accounting for 95.59% of the variances in ROA.
	<b>During COVID-19</b>	<b>63.87%</b>	The coefficient of multiple determinations $R^2$ suggests the model is fit, with all independent variables accounting for 63.87% of the variances in ROA.

Source: Author Compiled (2023)

The explanatory power of the model concludes that there is a significant impact of determinants of financial performance towards the Sri Lankan life insurance industry during the COVID-19 pandemic and pre-COVID-19 period. However, the impact is higher in the pre-COVID-19 phase when compared to during the COVID-19 period.

The researcher uses a criterion to assess the importance of independent variables. Only independent variables that are significant at the 5% level are regarded as significant. Another benchmark for evaluating the importance of variables is the T-test. The variables are significant if the t-test results are greater than 2, despite the number being positive or negative (either +2 or -2).

According to the tables, REIS and INV variables are not significant to the Model-01(ROE) under both periods. Regarding the LEV, it is individually significant to the Model-01 at 5% and 10% before the COVID-19 period and during the COVID-19 period, respectively. The DEBT variable is individually significant to Model-01 before the COVID-19 period, but it is non-significant to Model-01 during the COVID-19 period. SOM is individually significant to the model under both periods, indicating that SOM has a significant impact on the Return on equity. As shown in

the table, INV is not individually significant to Model-02(ROA) under both periods. Further, REIS is individually significant to the model before COVID-19 but insignificant during the COVID-19 period. Regarding the LEV, it is individually significant to Model-02 at 10% and 5% before the COVID-19 period and during the COVID-19 period, respectively. Finally, DEBT and SOM variables are individually significant to the Model-02 (ROA) under both periods, revealing that they have a significant impact on the return on assets.

Moreover, beta values indicate the strength of the impact of each independent variable on the dependent variable in the model, which can be either positive or negative. As presented below, the coefficient table shows the relationship between the explanatory variables. The result illustrated above reveals that REIS negatively impacted ROE under both periods, while INV and SOM positively impacted ROE on both occasions. However, LEV has negatively impacted the ROE in the pre-COVID-19 period but positively impacted the ROE during the COVID-19 period, while DEBT has positively impacted the ROE in the pre-COVID-19 period but the same negatively impacted the ROE during the Covid19 period indicating mixed results. In terms of ROA as the dependent variable, both LEV and INV have a negative impact on ROA under both periods, while DEBT and SOM have a positive impact on ROA on both occasions. However, REIS shows mixed results since REIS negatively impacted ROA in the pre-COVID-19 period, while REIS positively impacted ROA during the COVID-19 period.

### **Hypotheses Testing**

H1: There is a significant positive impact from the Debt Ratio to Return on Assets during the COVID-19 pandemic.

The result obtained from the multiple regression analysis supports the alternative hypothesis that there is a significant positive impact from the Debt Ratio to ROA on the Financial Performance of the Sri Lankan Life Insurance Industry during the COVID-19 Pandemic. However, the research study by Sibindi (2021) established that the Debt Ratio has a negative and highly significant relationship with ROA.

H2: There is a significant positive impact from the Debt Ratio to Return on Equity during the COVID-19 pandemic.

The result obtained from the multiple regression analysis does not support the alternative hypothesis that there is a significant positive impact from the Debt Ratio to ROE on the Financial Performance of the Sri Lankan Life Insurance Industry during the COVID-19 pandemic. This result is in line with a similar study by Sibindi (2021), which established that the Debt Ratio has a negative insignificant effect on ROE by using the Random Effect Model.



H3: There is a significant positive impact from the Reinsurance Ratio to Return on Assets during the COVID-19 pandemic.

The result obtained from the multiple regression analysis does not support the alternative hypothesis that there is a significant positive impact from the Reinsurance Ratio to Return on Assets on the Financial Performance of the Sri Lankan Life Insurance Industry during the COVID-19 pandemic.

H4: There is a significant positive impact from the Reinsurance Ratio to Return on Equity during the COVID-19 pandemic.

The result obtained from the multiple regression analysis does not support the alternative hypothesis that there is a positive significant impact from the Reinsurance Ratio to ROE on the Financial Performance of the Sri Lankan Life Insurance Industry during the COVID-19 pandemic.

H5: There is a significant positive impact from the Investment Ratio on the Return on Assets during the COVID-19 pandemic.

The result obtained from the multiple regression analysis does not support the alternative hypothesis that there is a significant positive impact from the Investment Ratio to the ROA on the Financial Performance of the Sri Lankan Life Insurance Industry during the COVID-19 pandemic.

H6: There is a significant positive impact from Investment Ratio to Return on Equity during the COVID-19 pandemic.

The result obtained from the multiple regression analysis supports the alternative hypothesis that there is a significant positive impact from the Investment Ratio to ROE on the Financial Performance of the Sri Lankan Life Insurance Industry during the COVID-19 pandemic.

H7: There is a significant positive impact from the Leverage Ratio to Return on Assets during the COVID-19 pandemic.

The result obtained from the multiple regression analysis supports the alternative hypothesis that there is a significant positive impact from Leverage Ratio to ROA on the Financial Performance of the Sri Lankan Life Insurance Industry during the COVID-19 pandemic.

H8: There is a positive significant positive impact from Leverage Ratio to Return on Equity during the COVID-19 pandemic.

The result obtained from the multiple regression analysis supports the alternative hypothesis that there is a significant positive impact from the Leverage Ratio to ROE on the Financial Performance of the Sri Lankan Life Insurance Industry during the COVID-19 pandemic.

H9: There is a significant positive impact from the Solvency Margin to Return on Assets during the COVID-19 pandemic.

The result obtained from the multiple regression analysis supports the alternative hypothesis that there is a significant positive impact of Solvency Margin to ROA on the Financial Performance of the Sri Lankan Life Insurance Industry during the COVID-19 pandemic.

H10 = There is a positive significant impact from Solvency Margin to Return on Equity during the COVID-19 pandemic.

The result obtained from the multiple regression analysis supports the alternative hypothesis that there is a positive significant impact from Solvency Margin to ROE on the Financial Performance of the Sri Lankan Life Insurance Industry during the COVID-19 pandemic.

**Table 11: Summary of Hypotheses Testing Results**

Hypothesis	T value	p-value	Beta Value	Results
H1	1.99116	0.0515	0.068369	Reject
H2	-0.23316	0.8165	-0.06406	Reject
H3	0.36124	0.7607	0.007322	Reject
H4	-0.30293	0.7631	-0.05797	Reject
H5	-0.30638	0.7605	-0.03794	Reject
H6	0.84393	0.4024	0.050924	Reject
H7	-2.54261	0.0139	-0.00589	Accept
H8	1.71591	0.0919	0.31803	Accept
H9	8.40226	0.0000	0.311192	Accept
H10	11.23302	0.0000	3.32011	Accept

Source: Author Compiled (2023)

## CONCLUSION

The basic intent of this chapter is to present the overall overview of the research by summing the main findings of the research analysis and giving future research directions. Accordingly, this section started its discussion by briefly summarizing the overviews of the study and its main findings. In summary and conclusion, based on the study findings, the researcher highlights some recommendations for the target population of the study pivoting. The study strengths, together with the limitations of the study and future research directions, are presented in this section.

Many management teams struggle to sustain good control over the financial performance of the life insurance companies that drive them. However, the COVID-19 pandemic is unique in its combination of challenges, making mitigation even more complex. It also stresses that global economic disasters have increased attention and possibly changed the attitude towards financial performance in an approach to raising company growth. In today's complex and changing economic world, the decisions on financial performance strategies are some of the most important and challenging tasks for corporate executives since they can play a decisive role in improving the financial situation of companies in times of pandemic, especially during the COVID-19 critical period.

The purpose of this study was to investigate whether COVID-19 had a significant impact on the financial performance of the life insurance companies in Sri Lanka during the COVID-19 pandemic. The study aimed to examine the statistical significance of the financial performance measured through the Return on Equity and Return on Assets. The study examined the impact of the reinsurance ratio, debt ratio, solvency margin, leverage ratio and investment ratio to predict the financial performance and to investigate whether COVID-19 had any significant impact on the independent variables. In this research study, the correlation matrix shows that in the Sri Lankan life insurance industry during the COVID-19 pandemic, ROA and ROE show a positive and strong relationship, which is 89%. The investment Ratio and Solvency Margin are positively correlated with the ROE and ROA financial performance indicators. This means the findings indicate that the Sri Lankan life insurance companies should increase their investment ratio and solvency margin to enhance their financial performance based on the company. The Debt Ratio, reinsurance ratio and Leverage Ratio are negatively correlated with the ROE and ROA. Scholars concluded that a low debt ratio, reinsurance ratio, and leverage ratio can help a company gain competitive advantage and safety, and then Life insurance companies can achieve the highest financial performance in Sri Lanka. The outcomes of this research study show that the Return on Equity and Investment ratio were positively related under both periods. Therefore, the scholar suggests maximizing the returns of insurance companies by making good investment decisions. Then, the outcomes of this research study are discussed including the impact of the reinsurance and debt ratios on the financial performance of Sri Lankan Life insurance companies during the COVID-19 pandemic. An increase in the debt ratio will reduce the Return on Equity during the pandemic. That means a company should reduce borrowing money. They should increase their equity financing during the pandemic. However, an increase in the debt ratio will raise the return on Assets of a company. Therefore, life insurance should increase its debt to improve the Return on Assets.

## **Limitations**

The limitations of this research study are the sample size and availability of data. There are only a few life insurance companies listed on the Sri Lankan Colombo Stock Exchange. The scholar has used only listed life insurance companies in Sri Lanka. The reason is that the researcher has used quarterly data. The published quarterly data is only available in Sri Lankan-listed life insurance companies. Therefore, the researcher must use the listed life insurance companies.

## **Managerial Implications**

The findings of this research study also help the public to select the best insurers to buy their life insurance policies. Customers also can make decisions by looking at the financial performance of the life insurance companies. Furthermore, shareholders of the firms can also benefit by understanding the importance of the financial performance of Life insurers and the impact of COVID-19 on this. This is a motivation element for all these listed life insurers to be energetically involved in effecting more successful strategies to moderate such risks in the future and maintain a continuous flow of processes.

## **Suggestions for Future Research**

Future research should aim to include all life insurance companies, general insurance companies and composite insurance companies like this. The research analysis must be carried out individually and equally for each insurance class. This research study has used limited variables. However, future researchers can use the macroeconomic variables also. The scholar used a descriptive research design for this current paper based on the life insurance industry. Nevertheless, future scholars can use case studies as case studies help to find an in-depth investigation of a single event or a group. Furthermore, future researchers can use the impacts of the liquidity ratio, retention ratio, firm size, underwriting risk, firm age and equity capital, and the researcher can compare results with those reached in developed markets. This research study used the Return on Assets and Return on Equity as the measurements of financial performance. Nonetheless, for a better proxy, a future researcher can use the stock price return.,

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