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DETERMINANTS OF FINANCIAL DISTRESS IN THE SRI LANKAN INSURANCE INDUSTRY: EVIDENCE FROM THE GROVER MODEL

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Abstract

This study examines the determinants of financial distress in the Sri Lankan insurance industry by applying the Grover Model, a predictive model rarely utilized in this context. Covering the period from 2016 to 2022, the analysis considers both macroeconomic and firm-specific financial variables, including inflation, exchange rates, financial leverage, investment income ratios, and the risk-based capital ratio. The study uses secondary data from all 29 licensed insurance companies in Sri Lanka, treating the entire industry as both population and sample. Data were analyzed using Stata software through descriptive statistics, correlation analysis, regression modelling, and coefficient analysis to assess the relationships between the selected variables and financial distress. The results indicate that the risk-based capital ratio is a significant positive determinant of financial distress, highlighting the importance of capital adequacy in maintaining financial stability. In contrast, inflation, exchange rates, investment income, and financial leverage showed no statistically significant effect. These findings emphasize the critical role of capital risk management in the long-term survival and stability of insurance firms. Accordingly, the study recommends that insurers adopt prudent capital management practices to mitigate operational risks and enhance financial resilience, in alignment with the predictive guidance offered by the Grover Model.

Keywords: Financial Distress, Grover Model, Insurance Sector, Panel Regression, Risk-Based Capital

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1. INTRODUCTION

1.1. Background of Study

This study examines financial distress within Sri Lanka's insurance industry—an essential component of the economy that promotes financial security, reduces healthcare burdens, and strengthens household resilience. Recent global and domestic challenges, notably the COVID-19 pandemic, the Russia–Ukraine conflict, and surging inflation, have severely disrupted industry operations (Fernando & Jayasinghe, 2023). Insurers have struggled to meet obligations due to key distress determinants, including rising price inflation, volatile exchange rates, and increasingly stringent risk-based capital (RBC) requirements imposed by regulators (Kebede et al., 2024). These factors have eroded solvency margins and operational stability, particularly among smaller insurers, heightening systemic vulnerability in the sector (Insurance Regulatory Commission of Sri Lanka (IRCSL, 2024).

This study addresses the pervasive financial distress afflicting Sri Lanka's insurance sector, a phenomenon mirrored across industries. Fitch Ratings has downgraded several insurers largely due to weak capital adequacy, asset-management deficiencies, and deteriorating business profiles (Fitch, 2023) . Notably, Co-operative Insurance Company PLC experienced multiple-notch downgrades tied to both regulatory governance issues and high risk concentrations in sovereign-linked fixed-income assets, culminating in RBC levels falling below peer norms. Given insurance firms' central role in formal risk management, this study applies the Grover Model to identify key financial and macroeconomic predictors of distress, an analytical lens rarely applied to Sri Lankan insurers. The Grover framework integrates firm-level indicators (e.g. equity capital ratios, liquidity, asset quality) with macroeconomic shocks (such as inflation, currency volatility, sovereign credit downgrades), enabling a structured analysis of solvency risk. By combining Fitch's observed downgrading rationales, capital strain, asset-liquidity mismatch, weakened business durability, with macroeconomic stressors, this research aims to elucidate the principal variables that precipitate insurer distress in Sri Lanka. This approach fills a critical gap in the literature on the application of distress prediction models within emerging-market insurance industries. This study contributes towards filling a research gap with particular attention to the determinants of financial distress in the Sri Lankan insurance industry by applying the Grover Model, a model utilized quite sparingly in this context.

1.2. Research Questions

Based on the explanation main research question formulated;

- How do the exchange rate, inflation rate, risk-based capital ratio, investment income ratio, and financial leverage impact financial distress companies in Sri Lanka's insurance industry?

The main key research objectives are given below;

- To find the impact of inflation rate, exchange rate, risk-based capital ratio, investment income and financial leverage on financial distress assessed by the Grover Model.
- To assess the impact of financial leverage on the likelihood of financial distress in insurance companies.
- To identify the most significant financial and macroeconomic predictors of financial distress using the Grover Model.

1.3. Significance of the Study

The study is significant for insurance companies in Sri Lanka in terms of providing insights into financial distress and factors determining such distress. Understanding such factors helps in early detection so that companies and regulators can take corrective actions. A greater comprehension of risk-based capital ratios would be valuable in setting up well-designed standards for capital adequacy. A stable insurance market has positive implications for the insured and the sustenance of a well-functioning financial ecosystem in Sri Lanka.

1. LITERATURE REVIEW

The determinants of financial distress in the insurance industry, specifically concerning Sri Lanka, have been explored in this literature review. It evaluates various determinants of financial stability, such as inflation, exchange rates, risk-based capital ratios, investment income, and financial leverage. The findings reaffirm that macroeconomic and financial constraints majorly affect the insurance companies' ability to fulfil their obligations and remain in business.

2.1. Determinants of Financial Distress

Inflation Rate

Inflation, defined as the sustained rise in general price levels, exerts a deleterious influence on insurance company performance by accelerating claim costs and eroding real reserves. Rapid price increases also suppress household demand for insurance products, as discretionary spending contracts under declining purchasing power. Empirical evidence from Nigeria's insurance market during both 2003–2007 and the COVID-19 era indicates that soaring inflation constrains premium growth and weakens underwriting performance (Ibeabuchi et al., 2024; Nairametrics, 2024). High claims inflation diminishes insurers' profitability and impairs reserve adequacy, thereby heightening vulnerability to financial distress (Nairametrics, 2024).

Exchange Rate

Risks are savaged by fluctuations in exchange rates, especially for insurance companies conducting international trade. For instance, trade and premium collection

would put companies at financial risk in a floating exchange rate system such as that of Sri Lanka (Thevakumar & Jayathilaka, 2022).

Risk-Based Capital

The RBC ratio is an essential measure of capital adequacy for insurers. When the RBC ratios are low, it indicates financial vulnerability for policyholders. However, regulatory measures such as RBC standards mitigate this risk by ensuring merely adequate reserves (Hery et al., 2023).

Investment Income

This income is derived from premiums, which are invested to provide claims management and financial stability. Poor investment yields could lead to financial crises, as stated in insurance studies in Indonesia (Wahyuddin & Mauliyana, 2021).

Financial Leverage

Leverage, defined as the proportion of debt relative to equity, can amplify insurer profitability but simultaneously elevate insolvency risk if misapplied. Recent empirical findings from Ethiopian and Bangladeshi insurance sectors demonstrate that higher financial leverage is significantly associated with poorer Z-scores (greater distress risk) and lower returns on assets (ROA) (Kabeda et al., 2024).

Financial Distress

When the company fails to pay its debt obligations, it suffers from financial distress and is more likely to go bankrupt. The avoidance of distress thus depends upon the sound management of liquidity and leverage in a business. The Altman Z-score, Springate, Zmijewski, and Grover Model serve to predict distress (Ikpesu et al., 2020).

2.2. GROVER Model/ G Score Model

Leverage, along with liquidity and profitability ratios, constitutes the basis of the Grover Model, which integrates these financial indicators to predict bankruptcy. Empirical research using Indonesian corporate data demonstrated that the Grover Model can achieve accuracy rates as high as 96.6% outperforming alternative models like Altman and Springate (Yanti et al., 2023). The model's applicability extends to industry-specific contexts, including Indonesia’s food and beverage sector (Husein & Pambekti, 2015), highlighting its robustness across diverse corporate environments.

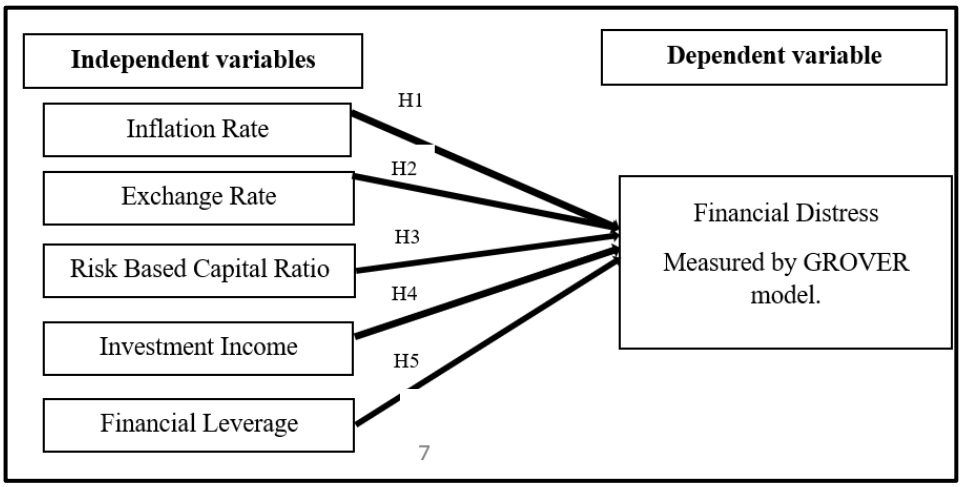
2. METHODOLOGY

The investigation into the causes of financial distress in the insurance companies in Sri Lanka was carried out using the research methodology described in this chapter. The study uses a quantitative, deductive approach using the Grover Model to analyse the inflation rate, exchange rate, risk-based capital (RBC) ratio, investment income, and financial leverage as predictors. It employed secondary data from annual reports

of Sri Lankan insurers and the industry's other sources for a coverage period from 2016 to 2022. It adopts a positivist approach focusing on measurable data and employs financial ratios in the Grover Model methods to predict financial distress. That would be a deductive approach, beginning from well-established theories and hypotheses in terms of distress and its determinants, studying the data while determining the truthfulness of the theories.

3.1. Conceptual Framework

Figure 1: Conceptual Framework



3.2. Population and Sampling

Regarding the Insurance Regulatory Commission of Sri Lanka (IRCSL), this study covers 29 insurance companies in Sri Lanka as the population. The same number is considered a sample for the evaluation and analysis. Secondary data will be collected from the annual reports of insurance companies, handbooks by IRCSL, and other industry sources. Data were analyzed in Stata software by descriptive statistics, correlation analysis, regression analysis, and coefficient analysis to determine and examine the relationships and interactions between variables and financial distress. OLS assumptions will be tested based on secondary data.

3.3. Operationalization Table

The Operationalization table was developed based on the variables.

Table 1: Operationalization Table

Inflation Rates	Inflation erodes purchasing power, makes it difficult to cover expenses and pay off debt, and can be seen to affect financial distress	Inflation rates (Annually) Central Bank Report

Exchange Rates	This can be ascertained how exchange rate fluctuations affect companies financially by affecting import costs, export earnings and the value of foreign debt.	Exchange rates (Annually) Central Bank Report
Risk-Based Capital Ratio	The risk-based capital ratio is important to ensure financial institutions have enough capital on hand to absorb losses proportionate to the risks they take.	RBC Ratio =Regulatory capital/ Risk weighted assets
Investment Income	Investment income provides a critical lifeline for financially distressed companies by generating additional cash flow for debt management and funding recovery efforts.	Investment income Investment income/ Net premiums earned
Financial Leverage	A high debt burden can worsen the situation, but if used strategically, it can be critical for restricting.	FL Total Debt/ Shareholder's equity (Corporate Finance Institute, 2023)

Source: *Author Compiled (2024)*

3.4. Hypotheses Development

This study considers whether inflation rates, exchange rates, risk-based capital ratios, investment income, and financial leverage significantly impact financial distress. Based on the conceptual framework and operationalization table, the following hypotheses were developed.

H1: Inflation rates have a significant impact on financial distress.

H2: Exchange rates have a significant impact on financial distress.

H3: Risk-based capital ratio has a significant impact on financial distress.

H4: Investment income has a significant impact on financial distress.

H5: Financial leverage has a significant impact on financial distress.

3. RESULTS AND DISCUSSION

The study uses the Grover Model to discuss the determinants of financial instability among the insurance companies in Sri Lanka. The analysis was directed at seven financially distressed insurance companies from 2016 to 2022 in the Sri Lankan

insurance industry. The assessment of financial distress, using key financial ratios, has been carried out using the Grover Model through Stata software.

4.1. Descriptive Statistics

Table 2: Descriptive Statistics.

Variable	Obs	Mean	Std.Dev.	Min	Max
IR	49	0.11	0.15	0.21	0.49
ER	49	202.42	68.44	149.8	363.11
II	49	0.64	1.33	-0.07	7.51
FL	49	1.36	3.87	0.11	26.8
RBC	49	2.09	1.53	-1.88	8.8
Z core	49	0.26	0.42	-0.68	1.81

Source: *STATA Output (2024)*

Descriptive analysis of the financial data of seven insurance companies in Sri Lanka has revealed so much about the different parameters leading to financial difficulties over the last seven years. The inflation rate was 11% with a standard deviation of 15%, making it variable, with inflation rates between 21% and 49%. These variations strongly affect the financial well-being of the companies involved. The exchange rate average was about 202.42, with a standard deviation of about 68.44, causing it to range between 149.8 and 363.11. This shows how the exchange rate could be an important determinant of financial stress. Such exchange rate fluctuations make the companies more susceptible to international economic conditions.

The average investment income ratio was 0.64, with a standard deviation of 1.33 and a range of -0.07 to 7.51, implying that the companies depended to a varying degree on financial market returns. It also indicates that inconsistent investment results primarily impair financial health. Leverage was 1.36 in mean and 3.87 in standard deviation, ranging from 0.11 to 26.8. Thus, they are exposed to heavy risks from these debts. Such high leverage resulted in the exposure of insurance firms in somewhat tricky situations. The average risk-based capital (RBC) ratio was 2.09, while the standard deviation was 1.53, with a range between -1.88 and 8.8. Inadequate capital cushions adversely affect financial crises. Regarding financial distress, the Z-score showed a mean value of 0.26 and a standard deviation of 0.42. The variation in Z-scores indicates that firms with a higher debt-equity ratio tend to be more distressed and subject to distress due to macroeconomic volatility arising from inflation and changes in exchange rates.

4.2. Correlation

Table 3: Correlation Matrix

Variables	IR	ER	IIR	FL	RBC	Z score
IR	1					
ER	0.961	1				
II	0.108	0.152	1			
FL	-0.061	-0.143	-0.082	1		
RBC	0.001	0.065	0.342	-0.416	1	
Z score	0.019	0.009	-0.161	-0.171	0.330	1

***Source**: STATA output (2024)*

Correlation analysis from this study reveals that data on financial metrics and financial distress (Z-score) have been strongly correlated, although differently, among Sri Lankan insurance companies. The inflation rate and financial distress display a poor correlation (0.019), typically representing practically no relationship. The same applies to the exchange rate, which bears a weaker relation of 0.0085. A ratio of investment income demonstrates a weak negative correlation (0.061) with financial distress, implying that higher investments slightly reduce financial distress, but this effect is negligible. Financial leverage also shows a weak negative correlation (0.171), which means increased leverage minimizes distress slightly, possibly due to efficiency in financial management or returns from the leveraged investment, but with a minimal impact. On the contrary, the risk-based capital ratio has a positive correlation with financial distress (0.3295). This means firms with high-risk-based capital tend to experience more distress due to the risky financial activities they get themselves into or high capital requirements. Generally, most financial variables relate to financial distress weakly; however, the risk-based capital ratio has a significant effect, pointing out its critical role in insurance companies' financial stability.

4.3. Normality Test

Table 4: Skewness and Kurtosis Test for Normality

Variables	Obs	Mean	Std. Dev.	Skew.	Kurt.
Z core	49	0.2624694	0.428714	1.128751	5.427838
IR	49	0.1145946	0.1589317	1.981658	5.038099
ER	49	202.4257	68.44815	1.773733	4.616966
IIR	49	0.6434694	1.336381	3.870597	18.37775

FL	49	1.362245	3.870458	6.005064	39.72505
RBC	49	2.092245	1.532633	1.331578	9.847407

Source: *STATA Output (2024)*

Skewness and kurtosis tests were used to examine the normality of the six variables: Z-score, Inflation Rate (IR), Exchange Rate (ER), Investment Income Ratio (IIR), Financial Leverage (FL), and Risk-Based Capital Ratio (RBC). The bounds for skewness and kurtosis as indicators of normalcy are ±2 and 5, respectively. Z-score shows moderate symmetry (skewness value is 1.13) but slightly heavy tails (kurtosis value is 5.43), indicating an approach to normality in distribution. Similarly, the IR is also borderline normal as the skewness values are marginal (1.98), and the kurtosis value is mildly elevated at 5.04.

ER shows slight positive skewness (1.77) with normal kurtosis (4.62), making it the most commonly distributed variable. On the other hand, IIR shows skewness of 3.87 and kurtosis of 18.38, while FL exhibits skewness of 6.01 and kurtosis of 39.73, indicating severe non-normality since they are highly skewed and have very heavy tails, which points to the presence of outliers. Moderate skewness is revealed by RBC (1.33), but the heavy tails show heavy kurtosis (9.85), implying a slight deviation from normality. The ER is the most normally distributed, while IIR and FL show significant deviation, indicating highly skewed data with possible outliers.

4.4. Multicollinearity

Table 5: Multicollinearity Results

Variable	VIF	1/VIF
ER	15.04	0.066504
IR	14.67	0.068149
RBC	1.38	0.725355
FL	1.3	0.767066
IIR |	1.17	0.851622
Mean VIF	6.71	

Source: *STATA Output (2024)*

The Variance Inflation Factors (VIFs) for Exchange Rate (15.04) and Inflation Rate (14.67) significantly exceed the accepted threshold of 10, indicating strong multicollinearity, further supported by their high positive correlation (0.9613). In contrast, Risk-Based Capital Ratio (1.38), Financial Leverage (1.30), and Investment Income Ratio (1.17) show minimal multicollinearity. The mean VIF of 6.71 suggests

moderate overall multicollinearity; however, this is primarily driven by the elevated VIFs of Exchange Rate and Inflation Rate, which distort the average.

4.5. Heteroskedasticity

Table 6: Heteroskedasticity – With Fixed Effect Model

HO: Constant variance		
Variables: fitted values of Z Core		
chi2(1)	= 18.46	= 18.46
Prob > chi2 =	0.0000	= 0.0000

Source: *STATA Output (2024)*

The null is homoskedasticity (or constant variance).
H1= Heteroscedasticity
It is possible to dismiss the supposition of constant variance since the p-value is relatively low (below 0.05). This suggests that the model contains some degree of heteroskedasticity.

4.6. Autocorrelation

Table 7: Autocorrelation

Wooldridge test for autocorrelation in panel data	
H0: no first-order autocorrelation	
F (1, 6) =	20.788
Prob > F =	0.0039

Source: *STATA Output (2024)*

Null Hypothesis (Ho): The absence of first-order autocorrelation. The disturbance terms do not exhibit correlation with each other across different time periods. The p-value, which is easily derived from the test statistics, is quite small (less than 0.05); hence, the hypothesis of sufficiency of first-order autocorrelations can only be rejected. This signifies the presence of autocorrelation in the model under study.

4.7. Regression Analysis

Table 8: Fixed Effect Regression Model

Variable	Coefficient	Std. Error	t-Statistic	P-value	95% Confidence Interval
IR	0.8435	1.1776	0.72	0.478	[-1.5428, 3.2291]

ER	-0.0019	0.0028	-0.68	0.501	[-0.0075, 0.0037]
IIR	0.0019	0.0469	0.04	0.966	[-0.0931, 0.0971]
FL	0.0107	0.0158	0.68	0.502	[-0.0216, 0.0426]
RBC	0.0917	0.0431	2.13	0.04	[0.0044, 0.1789]
Constant	0.339	0.4357	0.78	0.441	[-0.5438, 1.2218]

Source: *STATA Output (2024)*

Observations	49
Groups	7
R-squared	Overall: 0.0967
F-statistic	F (5,37) = 1.03, Prob > F = 0.4148
Significant Variables	RBC (p = 0.040)
Variance (rho)	0.4523
F-test (Fixed Effects)	F (6, 37) = 4.35, Prob > F = 0.002

Source: *STATA Output (2024)*

The regression formula can be developed as follows.

FD = 0.3390 – 0.8431IR + 0.0018ER + 0.0019IIR + 0.1068FL+0.9166RBC +ε

The analysis dwells on various factors that lead to financial distress in the insurance sector of Sri Lanka from the period 2015 to 2022 by using the Grover Model to derive the Computation of Financial Distress Measure (Z-score). Seven insurers are included in the study, with 49 observations across seven years.

Independent variables are as follows: Inflation Rate (IR), Exchange Rate (ER), Investment Income Ratio (IIR), Financial Leverage (FL) and Risk-Based Capital Ratio (RBC), which will be analysed against financial distress, being the dependent variable.

The regression result indicates a positive but insignificant relationship between IR and financial distress (coefficient: 0.8435, p=0.478). The second variables, ER and IIR, show slight and insignificant effects, with FL showing a positive but not significant association. However, RBC was the only important variable (coefficient = 0.0917, p = 0.040), indicating its role in augmenting financial distress. The fixed-

effects model depicts firm-specific effects denoted by the R value (45.23%), showing that nearly half of the variance in financial distress arises from inter-company differences. Although the model offers some perspective on specific predictors, the elevated p-values of most predictors stipulate that other significant determinants that contribute greatly to financial distress in the sector might not be included. The outcome suggests RBC as one of the critical determinants and further solidifies the argument for the need to view firm-specific heterogeneity in a broad aspect when analysing the wider determinants of financial distress.

4.8. Data Analysis for GROVER/ G-Score Model

Table 9: G- G-Score Values of Distressed Firms

	2016	2017	2018	2019	2020	2021	2022
MBSL General	**-0.2662**	0.0524	**-0.6819**	0.0512	0.0154	**-0.2041**	0.1463
MBSL LIFE	0.0789	0.0848	0.0707	0.1592	0.1777	**-0.0421**	0.3451
LIC	0.0643	0.1008	0.1343	**-0.1854**	**-0.3110**	0.2254	0.0505
Amana Life	0.1625	0.1926	**-0.0085**	0.0877	0.0406	0.0903	0.1007
LOLC Life	1.1968	1.0795	**-0.1306**	0.1881	0.3098	0.7133	0.4905
Fairfirst	**-0.0935**	0.8420	0.6484	0.5898	0.5700	0.5517	0.3700
Sanasa General	**-0.1535**	0.4297	0.5769	0.7542	0.2798	0.5403	0.3104

Source: *STATA Output (2024)*

The G Score model prediction ranges are based on the following,

- G-Score > 0 - Low risk of financial distress
- G-Score between -0.02 and 0 - Moderate risk of financial distress
- G-Score < -0.02 - High risk of financial distress

Negative G-Scores indicate poor financial conditions exhibited by some insurance companies operating in Sri Lanka over the years. MBSL General Insurance Ltd suffered economic distress in 2016, 2018, and 2021, which most probably affected its ability to invest or find funding. MBSL Life Insurance Ltd was also tagged with a negative G-Score for 2021 and seemed to show possible liquidity or operational problems. Life Insurance Corporation (Lanka) Ltd had some unfortunate negative G-Scores over the years 2019 and 2020, which may be understood as having some difficulty in income generation and equity retention. The negative G-Score of Amana Takaful Life PLC in 2018 is a sign of financial distress, which probably has long-lasting effects. LOLC Life Assurance Ltd also appeared distressed in 2018, perhaps indicating profit and resource management issues. Negative G-Score reflected

financial problems for Fairfirst Insurance Ltd in 2016, while even that for Sanasa General Insurance Ltd in 2016 led to worries about the company's ability to provide much-needed services or upgrade systems due to financial constraints.

4.9. Hypotheses summary

Table 10: Summary Table of Hypothesis

Hypothesis statement	P-value	Results
Hypothesis (H1): The impact of the inflation rate on financial distress is significant.	0.478	Rejected
Hypothesis (H2): The impact of the exchange rate on financial distress is significant.	0.501	Rejected
Hypothesis (H3): The impact of risk-based capital ratio on financial distress is significant.	0.04	Accepted
Hypothesis (H4): The impact of the investment income ratio on financial distress is significant.	0.966	Rejected
Hypothesis (H5): The impact of the Financial Leverage ratio on Financial Distress is significant	0.502	Rejected

Source: *Author Compiled (2024)*

4. CONCLUSION

In maintaining financial stability in the insurance sector of Sri Lanka, this research deals much with capital adequacy, mainly regarding the risk-based capital ratio. Consequently, it was observed that an insurance company with higher capital risks experiences financial distress more often than standard companies, especially in risky underwriting portfolios. Inflation and exchange rate fluctuations, however, do not contribute directly to financial distress and, in all probability, can be considered external agents. Financial leverage and investment income have been revealed as financial performance indicators; however, they failed to significantly impact distress. Dealing with capital risk is critical for long-term survival, thereby emphasizing the need for managers of insurance companies to adopt prudent and efficient capital management to avert operational losses and achieve long-term stability.

The findings of the research have valuable consequences concerning the Sri Lankan insurance sector, its management and governance. In the first place, it should be noted that insurance providers must always be highly concerned with the need to hold adequate capital reserves to strengthen their adaptability to possible occurrences of financial distress. Investment in risk-based capital has been associated positively with financial distress, which is why the importance of capital management strategies is

acknowledged for more than prudent capital ratios. Without adequate investment protection, they may create risks of financial losses.

Regulatory agencies such as the Insurance Regulatory Commission of Sri Lanka (IRCSL) should investigate the specific insurance capital adequacy regulation and enhance it. Requiring risk-based capital levels for all insurers that are highly levered or have a sizeable investment portfolio is a measure that will come up, preventing distress. It is necessary for IRCSL to add the Grover Model to its tool kit for distress analysis, such that it will be able to screen undervalued insurance firms

5.1. Limitations of the Study

This study had various limitations, including the data collected from only seven insurance companies in Sri Lanka, which did not indicate what the industry truly is like in totality. Also, analyzing secondary data drawn from annual reports or statistics released by regulators may not reflect the real-time market status or hidden signs of distress. The Grover Model is an enclosed space for research, and using other distress prediction models, such as Altman's Z-score, could have revealed more. A longer study duration would have allowed for a more holistic understanding of macroeconomic variables such as inflation and exchange rates.

5.2. Suggestions for Future Research

Future research can expand this study by including more insurance companies across different regions or sub-sectors, offering a broader understanding of financial distress. Studying insurers outside Sri Lanka and comparing findings across countries could provide valuable insights. Additionally, using alternative distress prediction models like Altman’s Z-score and integrating machine learning techniques for improved accuracy would enhance predictive capabilities. Longitudinal studies and qualitative analyses, such as interviews with industry experts, could further enrich the understanding of financial distress and risk management practices in the sector.

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