

## THE IMPACT OF FINANCIAL DISTRESS ON THE FINANCIAL PERFORMANCE OF COMPANIES: EVALUATION THROUGH STANDARD & POOR'S SRI LANKA 20 INDEX (S&P SL20)

Senavirathne W.E.W.M.R.C.<sup>1</sup>, Liyanage D.L.M. U.<sup>2</sup>, Liyanage C.O.<sup>3</sup>, Buddhika H.J.R.<sup>4</sup>

### Abstract

This study investigates the impact of financial distress on the financial performance of companies listed in the Standard & Poor's Sri Lanka 20 (S&P SL20) Index from 2020-2024; a timeframe marked by significant economic turbulence, including the COVID-19 pandemic and Sri Lanka's unprecedented sovereign debt crisis: quantitative research approach and secondary financial data used for the analysis. The study employs the revised Altman Z- score and Ohlson O-score models to measure financial distress, while Return on Assets (ROA) and Return on Equity (ROE) serve as indicators of corporate financial performance. The research explores the extent of financial distress experienced by these top-tier firms, its influence on key performance metrics, and sectoral variations within the index. Findings highlight the substantial negative impact of financial distress on profitability and operational efficiency, underscoring the vulnerabilities of even the largest Sri Lankan companies amid macroeconomic shocks. The study contributes to the limited empirical literature on corporate distress in emerging markets. It provides valuable insights for policymakers, investors, and corporate leaders aiming to enhance resilience and informed decision-making in volatile economic environments.

**Keywords:** Altman Z-score, emerging markets, financial distress, Ohlson O-score, S&P Sri Lanka 20 index

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<sup>1</sup>Department of Finance, University of Kelaniya, Sri Lanka  
Email: [miyuliyamage94@gmail.com](mailto:miyuliyamage94@gmail.com)

<sup>2</sup> Department of Finance, University of Kelaniya, Sri Lanka  
Email: [ossenmails@gmail.com](mailto:ossenmails@gmail.com)

<sup>3</sup> Department of Finance, University of Kelaniya, Sri Lanka  
Email: [csw\\_sl@yahoo.com](mailto:csw_sl@yahoo.com)

<sup>4</sup> Department of Finance, University of Kelaniya, Sri Lanka  
Email: [buddhikar@kln.ac.lk](mailto:buddhikar@kln.ac.lk) \*



## Introduction

Financial distress is when a company finds it difficult to pay its obligations, often resulting in declining profitability, asset depreciation, and operational disruptions, and can lead to insolvency or bankruptcy. It reflects a company experiencing a situation where operating cash flows are inadequate to meet immediate liabilities, leading to liquidity restrictions and loss of stakeholder confidence. Internal causes such as ineffective management, flawed strategies, lack of renewal products, and unstable corporate governance can also lead to financial distress. External shocks such as economic recessions, political instability, inflationary pressures, interest rate increases, exchange rate fluctuations and global events like pandemics can cause distress even in otherwise well-managed organisations. The consequences of the financial crisis extend beyond individual companies. It can have a chain reaction, leading to job losses, reduced investor returns, non-performing loans in the banking sector, and a decline in market confidence. This is especially the case in emerging markets, where financial markets are less developed, regulatory infrastructure is less robust, and where the ripple effects of corporate distress can undermine systemic stability and macroeconomic resilience. The problem addressed in this study is the adverse effect of financial distress on the financial performance of companies listed in the Standard & Poor's Sri Lanka 20 (S&P SL20) Index between 2020 and 2024. Despite these companies' critical role in the Sri Lankan economy, there is limited empirical research on how financial distress has influenced their operational and financial outcomes during this turbulent period.

The period under review includes a series of unprecedented disruptions. The COVID-19 pandemic (2020–2021) triggered economic slowdowns and global supply chain breakdowns, reducing revenues and raising operational costs. In 2022, Sri Lanka defaulted on its sovereign debt for the first time amid severe balance of payments issues. The Central Bank of Sri Lanka (CBSL, 2022) reported that gross domestic product (GDP) contracted by 7.8%, inflation peaked at over 70% by September, and the rupee depreciated sharply, severely undermining business stability and investment. The crisis extended into 2023, when the economy contracted again by 2.3% (CBSL, 2023). Sectors such as construction, manufacturing, Information Technology (IT), and finance experienced continued stress due to weak private demand, restricted access to credit, and input shortages. Although a modest recovery was recorded in tourism and services, many S&P SL20 index companies, particularly in manufacturing and banking, remained under financial pressure, as reflected in quarterly earnings reports and declining return metrics. By 2024, the macroeconomic environment began to stabilise. The Central Bank projected real GDP growth of approximately 5.0%, inflation entered negative territory in September 2024, and the rupee appreciated by 10.7% against the USD (CBSL, 2024). Despite these improvements, financial fragility persists at the corporate level due to legacy debt, cautious credit expansion, and the lagging effects of multi-year operational disruptions. Many listed companies have adopted restructuring strategies, but financial performance remains uneven, with sluggish recovery in Return on Assets (ROA) and Return on Equity (ROE) metrics for several firms. Given this context, there is a clear research gap in systematically analysing how financial distress, quantified through predictive models like the Altman Z-score and Ohlson O-score, has affected the performance of these key firms over a five-year crisis and recovery period. Understanding these dynamics is vital for building early warning systems, strengthening corporate governance, and shaping evidence-based policy to enhance corporate and economic resilience.

The study seeks to answer the following research question; *'What is the impact of financial distress on the financial performance of companies in the S&P SL20 Index?'*

In line with the research question, the objectives of this study are:

RO1: *To find the impact of financial distress among companies in the S&P SL20 Index from 2020 to 2024 using established financial distress models: Altman Z-score & Ohlson O-score model.*

RO2: *To find the impact of financial distress on key financial performance metrics, including ROA and ROE.*

## Literature Review

### Impact of financial distress on corporate financial performance

The adverse effect of financial distress on firm performance has been widely documented. Whitaker (1999) identified declining cash flows as a primary indicator of corporate distress, highlighting that operational inefficiencies and liquidity pressures typically precede bankruptcy. Andrade and Kaplan (1998) further demonstrated that distressed firms often face substantial reductions in key performance metrics such as ROA and ROE, signaling deteriorating profitability and shareholder value. Altman and Hotchkiss (2010) expanded on these findings by demonstrating that financial distress systematically undermines corporate value and long-term competitiveness. They emphasized the relevance of predictive models such as the Altman Z-score and Ohlson's O-score as practical early detection and risk mitigation tools.

These models provide actionable insights into financial vulnerability, allowing firms to adopt proactive restructuring and financial strategies. In emerging markets, the consequences of financial distress are often more pronounced due to institutional weaknesses, less-developed financial systems, and heightened macroeconomic uncertainty (Laeven & Valencia, 2018; Claessens & Kose, 2013). In the Sri Lankan context, recent empirical work by De Mel and Buddhika (2024) identified a significant negative relationship between financial distress, measured using the revised Altman Z-score, and corporate profitability metrics such as ROA and ROE. Their findings affirm that even firms within the S&P SL20 Index are not immune to financial fragility, particularly under economic instability and exchange rate pressure.

### **Stock markets, index inclusion, and firm behaviour in Sri Lanka**

Structural developments in Sri Lanka's financial markets have significantly influenced corporate behaviour, particularly following the S&P SL20 Index in 2012. This index comprises the 20 most liquid and highly capitalised companies on the Colombo Stock Exchange (CSE), representing a cross-section of leading firms across key sectors such as banking, telecommunications, consumer goods, and manufacturing.

Perera et al. (2016) noted that the creation of the S&P SL20 Index catalysed enhanced corporate governance and operational discipline. Firms in the index often face heightened scrutiny from investors, regulators, and rating agencies, prompting improvements in financial disclosure, transparency, and efficiency. However, the performance pressures associated with index inclusion can also lead to aggressive financial strategies, including higher leverage, cost-cutting, and risky expansion behaviours that may increase exposure to financial distress during economic instability.

Commercial Bank of Ceylon PLC, one of the largest private banks in the country, has demonstrated resilience in managing liquidity and credit risks. However, during the post-COVID-19 economic downturn and subsequent sovereign debt crisis, the bank, like many others, faced elevated non-performing loan (NPL) ratios and tightening margins, highlighting the vulnerability of even substantial index firms to macroeconomic shocks.

These practical scenarios demonstrate how firms in the S&P SL20 Index are not immune to financial challenges despite their strong market positions. Their behaviour under pressure offers valuable insights into broader capital market dynamics. Declining performance or distress in these firms often signals systemic risk and directly affects investor sentiment, foreign capital flows, and stock market stability (Fernando & Ranasinghe, 2020).

### **Financial distress in the Sri Lankan stock market**

The country's historic sovereign debt default in 2022 was a turning point in the financial landscape, which triggered a cascade of adverse economic effects. Acute liquidity shortages, steep depreciation of the Sri Lankan rupee, escalating inflation, fuel and energy scarcities, and disruptions in supply chains and consumer demand characterized the macroeconomic crisis. These conditions placed immense pressure on corporate financial structures, even among the most stable firms listed on S&P SL20 Index.

Scholarly studies have increasingly begun to investigate these dynamics. For example, Senaratne and Ajward (2018) explored the financial health of listed companies in Sri Lanka. They found that firms with weak governance structures and high debt ratios were more susceptible to distress during macroeconomic downturns. In the Sri Lankan context, De Mel and Buddhika (2024) recently confirmed a statistically significant negative relationship between financial distress, measured through the Altman Z-score, and firm performance indicators such as ROA and ROE, particularly during the years 2020 to 2023. Their study highlights that even firms within the S&P SL20 Index, typically considered more resilient due to their market capitalisation and liquidity, were not immune to the deteriorating economic environment.

Therefore, analysing the evolution of financial distress among S&P SL20 companies from 2020 to 2024 offers valuable insights into how top-tier Sri Lankan firms navigated systemic pressures. This period encompasses pre-crisis and crisis phases, making it ideal for assessing firm-level resilience, adaptability, and strategic financial management. It also underscores the importance of context-specific research for institutional capacity, regulatory effectiveness, and unique socio-economic challenges in Sri Lanka.

## **Methodology**

### **Study period and sample**

This study adopts a quantitative research approach relying on secondary data to investigate the relationship between financial distress and corporate financial performance among companies listed on the S&P SL20 Index between 2020 and 2024. Secondary data from audited financial statements, annual reports, and official company filings was accessed via the CSE and individual company websites. Macroeconomic data, including inflation rates,

interest rates, and exchange rate movements, will be obtained from the Central Bank of Sri Lanka and the World Bank databases to provide the contextual backdrop for financial analysis. The population for this study comprises all companies listed on the S&P SL20 Index as of 2024. The index includes 20 of the most liquid and largest firms traded on the CSE, representing a broad spectrum of industries in Sri Lanka. A purposive sampling method is employed for sample selection. Based on the research objectives, the following hypotheses were formulated:

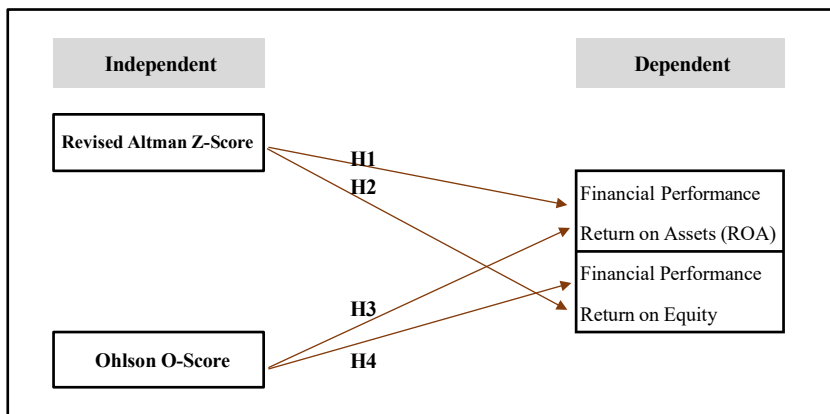
H1: *There is a significant impact of financial distress (Z-Score) on the ROA of S&P SL 20 Index companies in Sri Lanka.*

H2: *There is a significant impact of financial distress (Z-Score) on the ROE of S&P SL 20 Index companies in Sri Lanka*

H3: *There is a significant impact of financial distress (O-Score) on the ROA of S&P SL 20 Index companies in Sri Lanka*

H4: *There is a significant impact of financial distress (O-Score) on the ROE of S&P SL 20 Index companies in Sri Lanka*

**Figure 1**  
Conceptual Framework



(Source: Developed by authors based on literature (2024))

**Dependent variable:**

Return on Assets: ROA measures a firm's efficiency in utilising its assets to generate net income. It is a key indicator of operational performance and reflects the firm's ability to manage its resources productively.

Return on Equity: ROE evaluates a firm's profitability relative to shareholders' equity. It is commonly used to assess how effectively a company uses investors' capital to generate earnings and is particularly important for gauging shareholder value during periods of financial stress.

**Independent variable:**

Revised Altman Z-Score: The Altman Z-score, initially introduced in 1968, was revised in 2012 to enhance its relevance across various industries and economic settings, particularly in emerging markets. The updated model includes a combination of financial ratios that capture profitability, leverage, liquidity, solvency, and operational activity. This revision offers improved accuracy in predicting corporate bankruptcy and is more suited to the financial characteristics of firms listed on the S&P SL20 Index (Altman et al., 2017)

Ohlson O-Score: Developed by Ohlson (1980), this model uses a logistic regression approach to assess bankruptcy probability based on nine financial variables, including size, leverage, liquidity, and performance indicators. It applies to various industries and provides a complementary perspective to the Altman Z-score. Including the O-score in this study enhances methodological robustness and accounts for different dimensions of financial distress not captured by a single model.

**Model specifications**

Z-Score Model developed by Altman (1968), the Altman Z-score model was revised in 2012 to enhance its applicability across various sectors and geographic contexts, particularly emerging markets. The revised model retains the core structure of combining multiple financial ratios but adjusts the coefficients and interpretation to

reflect contemporary accounting standards and economic realities. The 2012 revised Z-score includes five key financial ratios: working capital to total assets, retained earnings to total assets, earnings before interest and taxes to total assets, market value of equity to total liabilities, and sales to total assets. These components measure a firm's liquidity, profitability, solvency, leverage, and efficiency. the revised model offers a more suitable and robust framework for assessing corporate financial distress in the Sri Lankan context (Altman et al., 2017). The Ohlson O-Score model, developed by Ohlson (1980), is a logistic regression model that estimates the likelihood of corporate bankruptcy across industries. It is recognised for its broader applicability compared to the Altman model and includes a combination of financial ratios reflecting firm size, leverage, liquidity, profitability, and historical financial performance. The original logistic regression model is expressed as:

$$O = -1.32 - 0.407 \times \text{LOGTA} + 6.03 \times \text{TLTA} - 1.43 \times \text{WCTA} + 0.0757 \times \text{CLCA} - 2.37 \times \text{OENEG} - 1.83 \times \text{NITA} + 0.285 \times \text{FUTL} - 0.521 \times \text{INTWO} + 0.1 \times \text{CHIN}$$

**Table 01**  
Original logistic regression model used in Ohlson O-Score Analysis

Variable	Description
LOGTA	Natural log of total assets (size effect)
TLTA	Total liabilities / Total assets (leverage ratio)
WCTA	Working capital / Total assets (liquidity indicator)
CLCA	Current liabilities / Current assets (liquidity indicator)
OENEG	1 if total liabilities > total assets (negative equity), 0 otherwise
NITA	Net income / Total assets (profitability indicator)
FUTL	Funds from operations / Total liabilities
INTWO	1 if net income was negative for the last two years, 0 otherwise
CHIN	Year-over-year percentage change in net income

(Source: Author compiled based on Ohlson, 1980)

## Findings and Discussion

### Normality test

To determine whether the data is normally distributed, which is crucial for many statistical analyses, the Shapiro-Wilk test was used before the regression analysis was carried out. The Kurtosis value is greater than 02, which indicates the data set is not normal. But according to Klubnual et al. (2023), it is acceptable to use non-normal for testing special situations. The variable debt-to-equity (as well as the others examined) showed a significant deviation from a normal distribution, according to the results (p-value < 0.05). This implies a non-normal distribution of the data. Outliers may impact the distribution if the test results indicate non-normality. By capping extreme values at predetermined percentiles (1st and 99th), their impact brings the data closer to a normal distribution. Researchers frequently retest normality to ensure the data now satisfies the necessary presumptions

### Hausman test for panel data

The panel data was evaluated using fixed effects (FE) and random effects (RE) models. The Hausman specification test was used to choose the best model.

**Table 02**  
Hausman test results

	Coef (ROA)	Coef (ROE)
Chi-square test value	1.202499	0.287448
P-value	0.5481	0.8661

(Source: Eviews Output Author Compiled, 2024)

With a p-value of 0,5481 & 0.8661, the values are greater than 0.05, where it may be concluded that the random effects model is suitable for the ROA & ROE regression analysis.

### Correlation analysis

The correlation between ROE and ROA is strong and positive (0.87), indicating that companies with higher returns on equity tend also to have higher returns on assets. Ohlson O-Score has a weak positive correlation with ROE (0.19) and a slight negative correlation with ROA (-0.13), suggesting limited alignment with profitability measures. In contrast, Altman Z-Score shows a very weak negative correlation with ROE (0.04) and a weak positive correlation with ROA (0.07), implying minimal association with short-term profitability. The strongest negative relationship is between Ohlson O-Score and Altman Z-Score (-0.43), reflecting that as one score indicates higher financial risk, the other tends to show lower risk. Overall, the results suggest that ROE and ROA are closely linked, while the bankruptcy prediction models (Ohlson and Altman) vary more independently, capturing different dimensions of financial distress.

**Table 03**

*Summary of hypothesis testing*

Hypothesis	P-Value	Decision	Reason
H1: Z-Score → ROA	0.7497	Rejected	P-value > 0.05 → no statistically significant impact
H2: Z-Score → ROE	0.6200	Rejected	P-value > 0.05 → no statistically significant impact
H3: O-Score → ROA	0.0144	Accepted	P-value < 0.05 → statistically significant negative impact
H4: O-Score → ROE	0.6430	Rejected	P-value > 0.05 → no statistically significant impact

(Source: Author compiled, 2024)

According to statistics Altman Z score model does not have any significant impact on ROA and ROE where Ohlson model impact on ROA but no significant impact on ROE.

### Conclusion

The research findings indicate that among Sri Lanka's S&P SL20 companies, financial distress indicators have varying levels of impact on corporate profitability. The Ohlson O-Score shows a statistically significant negative relationship with ROA, suggesting that financial distress adversely affects firms' operational profitability. However, neither the Altman Z-Score nor the Ohlson O-Score demonstrates a significant relationship with ROE. Although the Altman Z-Score generally indicates a sound financial position, it shows considerable variability and potential outliers, warranting further investigation. The strong correlation between ROA and ROE also underscores their mutual importance in evaluating firm performance. Therefore, it is recommended that firms closely monitor Ohlson O-Score trends as indicators of operational inefficiencies. Future research should also focus on refining these models by addressing outliers and incorporating sector-specific dynamics to enhance predictive accuracy. It is recommended that future research endeavours focus on enhancing the predictive accuracy of financial distress models by incorporating additional explanatory variables, such as macroeconomic indicators, corporate governance attributes, and firm-specific qualitative factors.

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