Impact of Financial Distress on Financial Performance of Listed Manufacturing Companies in Sri Lanka

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Abstract

The purpose of this study to investigate the impact of financial distress on the financial performance of listed manufacturing companies in Sri Lanka. The study utilized Altman's Z-score, the Leverage Ratio, and the Distance to Default (KMV Model) as measures of financial distress and Return on Assets (ROA) and Return on Equity (ROE) were used to assess financial performance. The secondary data were drawn from the annual reports of 31 listed manufacturing companies in Sri Lanka from 2017 to 2022. The study employed descriptive and inferential statistical analyses, including regression analysis, correlation and variance, to test the established hypotheses. The results highlight the critical importance of closely monitoring financial distress indicators. Understanding these indicators helps predict and manage financial performance in the manufacturing sector. The study emphasizes that companies can improve their financial health by addressing the factors contributing to financial distress, enhancing financial performance and empowering the reader with actionable strategies. This practical approach empowers professionals in the industry, instilling in them a sense of capability and confidence in implementing these strategies. The theoretical implications, policy implications, and the future research implications of the study are also presented in the article.

Key Words: Financial Distress, Financial Performance, Listed Manufacturing Companies.

1. Introduction and background

The manufacturing companies in Sri Lanka play a vital role in the economy, contributing considerably to overall or total economic growth in developing countries (Elangkumaran. P, 2021). However, manufacturing companies face various difficulties from time to time, such as competition, poor financial management, economic downturns, unexpected market changes, and regulatory requirements. As a result of these difficulties, some external factors can create financial distress for manufacturing companies (Rubab, et al., 2022).

“Financial distress” is a term used to describe an upsetting financial situation where a company faces challenges with liquidity and has difficulty paying back outstanding debt, leading to the firm’s closure (Ahmad et al., 2020). When the companies are in financial distress, they have a lot of trouble making their payments on time or carrying on with business as usual because they don’t have enough money on hand or have failed to maintain liquidity; also, they have too much debt. So, financial distress is a serious occurrence that can significantly impact the performance and sustainability of organizations in different industries (Rubab et al., 2022). So, if the company does not address the financial distress, then the companies can have serious consequences, including bankruptcy and insolvency (Ahmad et al., 2020).

Financial distress is when a company struggles to generate enough profit to meet its financial obligations (Akinsola, 2017). The evaluation and measurement of a company’s overall financial health and its capacity to turn a profit and achieve its financial objectives are referred to as financial performance. Past researchers (Rubab, et al., 2022) have used various financial indicators and metrics to evaluate the company’s profitability, efficiency, liquidity, solvency, and overall effectiveness in managing its financial resources. Although there has been a lot of research on the impact of financial distress on firm financial performance, the conclusions are still in disagreement (Ahmad, et al., 2020). Empirical research studies have already investigated the impact of financial distress on financial performance, but their findings are mixed, and some contradictory findings can be found (Madhushani & Kawshala, 2018; Rubab et al., 2022).

According to previous research findings, a firm is in financial distress when it cannot pay its present obligations and declares bankruptcy (Madhushani & Kawshala, 2018). Any decrease in a firm's performance efficiency, whether direct or indirect, raises the likelihood of financial distress or issues (Ahmad et al., 2020). Although a lack of management competence is the main factor in

business failure, a lack of readily available cash is frequently another major factor (Aasen, 2011). An earlier study looked at several scenarios for overcoming financial distress and taking the appropriate action. According to Rubab et al. (2022), financial distress is an essential concern for manufacturing companies because it can significantly impact their financial performance.

The study conducted by Rubab et al., 2022, regarding the impact of financial distress on the financial performance of manufacturing firms listed on the Pakistan Stock Exchange reveals that the financial distress has a negative impact on the financial performance of listed manufacturing firms.

Some researchers have identified a positive relationship between financial distress and the firm's performance (Ahmad et al., 2020). Further, Tan (n.d) conducted research under the research title of Financial Distress and Firm Performance, which has identified a negative relationship between firm performance and financial distress. Shahabuddin (2021) examined the impact of financial distress on firm performance during COVID-19 in the case of Malaysia. The result of the study shows that financial distress has a significant impact on firm performance during the COVID-19 period

The variation of preceding research outcomes motivates this study to consider the impact of financial distress on firm financial performance in the case of manufacturing companies in Sri Lanka because those companies are the key pillar of the economy (Rubab et al., 2022). Therefore, the researcher uses the manufacturing companies as the unit of analysis of this research.

Some previous studies used Altman's Z-score Model to measure Financial Distress (Malik, et al., 2017). However, this study aims to use the financial leverage, M-distance to default (KMV) Model, and Altman's Z-score Model to measure financial distress. This study used the 31 manufacturing

companies listed on the Colombo Stock Exchange in Sri Lanka. Most of the researchers have used five years to investigate the impact. To fill the gap in that previous research, the researcher used seven years to determine the impact of financial distress on firm performance.

In addition to the above facts, in recent years, many companies in Sri Lanka have encountered a lack of financial performance due to financial distress (Weerasinghe & Bogamuwa, 2021). Therefore, the researcher has identified the need for considerable attention to the impact of financial distress on the financial performance of listed manufacturing companies in Sri Lanka. Accordingly, the study's problem statement is 'whether financial distress impacts the financial performance of the listed manufacturing companies in Sri Lanka'.

Therefore, the researcher recognized the significance of investigating the impact of financial distress on the financial performance of listed manufacturing companies listed in the CSE. Further, the study attempted to identify key causes of financial distress in Sri Lankan listed manufacturing companies by conducting a quantitative research study.

2. Research objectives

The primary aim of this study is to examine the effect of financial distress on the financial performance of manufacturing companies listed in Sri Lanka. Additionally, the study focuses on specific objectives, including analyzing the impact of the Altman Z-Score, assessing the influence of financial leverage, and evaluating the role of the KMV model on the financial performance of manufacturing companies listed in Sri Lanka.

3. Literature review

Financial distress is a term used to describe an upsetting financial situation where a company faces challenges with liquidity and has difficulty paying back outstanding debt, leading to the

organization’s closure (Ahmad, et al., 2020). Accordingly, financial distress is a serious occurrence that can have a significant impact on the performance and sustainability of organizations in different industries. Numerous things, such as economic downturns, poor management choices, and unforeseen occurrences like natural disasters, might contribute to financial distress. A company's financial performance can be significantly impacted by financial distress, which can result in decreased sales, profits, and returns on investments (Rubab, et al., 2022). If the company does not address the financial distress, then the companies can have serious consequences including bankruptcy (Ahmad, et al., 2020). Hence, companies need to address the financial distress with their financial performance.

Rubab, et al., 2022 examined the impact of financial distress on the financial performance of manufacturing firms listed on the Pakistan Stock Exchange by using financial distress as an independent variable and ROA as a dependent variable. The fixed-random effect model and KMV model are used to examine the data. The major findings of this study shows that financial distress has a negative and significant impact on the financial performance of listed manufacturing firms.

Shaukat and Affandi (2015), have analyzed the effects of financial distress on a company's financial performance in Pakistan's business sector. Regression analysis and a Z-score model are used for the research and they have found that there is a positive and significant relationship between financial distress and the firm’s financial performance. Further, (Shaharuddin, et al., 2021) have investigated the impact of financial distress on a firm’s performance during COVID-19 in Malazia. The result of the study shows that there is a negative impact between financial distress and the firm’s performance during the COVID-19 period. (Wu, et al., 2020), reveals that the negative relationship between financial distress and financial performance of the listed manufacturing companies at the Chinese stock exchange. Researchers have used the Z score to

measure financial distress and used ROA to measure the firm's financial performance. (Madhushani & Kawshala, 2018) shows that the Altman Z score has a positive relationship between both ROA and ROE (dependent variable) while the leverage has a negative relationship with ROA and a positive relationship with ROE. Sports (2017) conducted quantitative research to investigate the effect of financial leverage as a financial distress factor on the financial performance of Commercial banks in Kenya. As per the study findings, that leverage has a significant negative effect on financial performance, and high leverage reduces the profitability of commercial banks (Sporta, et al., 2017). Hence, there may be a positive or negative relationship between financial distress and the firm's financial performance. Therefore, the researcher has developed the following conceptual framework to examine the impact.

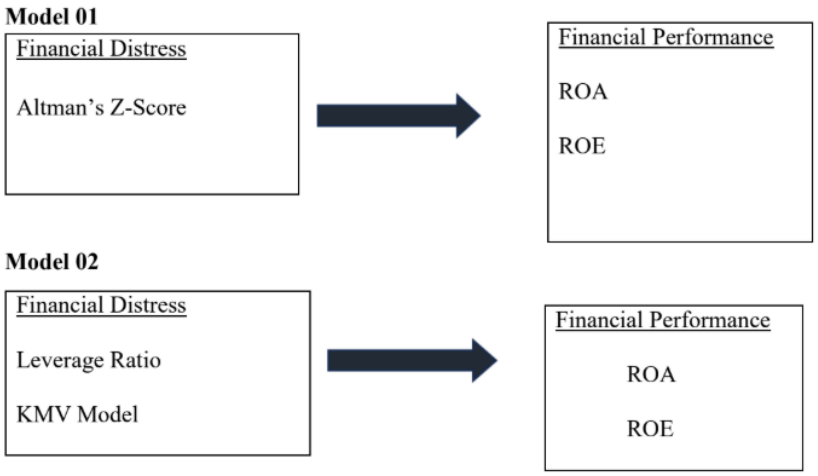

Figure 1: *Conceptual Framework*

Some studies' major findings show that financial distress has a negative impact on the financial performance of listed manufacturing firms, and the association between the two variables is significant in using by KMV model (Rubab, et al., 2022). Madhushani & Kawshala,(2018) further

stated that a positive correlation between financial performance (ROE) and financial difficulty (both Z score and leverage ratio).

Hence, the current study has developed the following hypothesis

H1: There is a significant positive relationship between financial leverage and the financial performance

H2: There is a significant positive relationship between KMV model and the financial performance

H3: There is a significant positive relationship between Altman's Z Score and the financial performance

4. Methodology

The current study used the explanatory research method by using a quantitative research approach because explanatory research provides explanations of observed phenomena, problems, or behaviors. The study population is 289 companies listed on the Colombo Stock Exchange of 31st March 2023, classified according to the GICS industry groups of 11 sectors. Using the purposive sampling method, the researcher selected 31 manufacturing companies listed in GICS. The sample period is from 2017 to 2022, covering the pre- and post-COVID-19 pandemic.

The measurement criteria of the dependent variable (Financial performance) are return on assets (ROA) and return on equity (ROE). Furthermore, the independent variable measured using the Altman Z-Score, leverage ratio, and KMV (distance to default) Model. The current study, which used regression analysis as the data analysis technique using the SPSS and STATA analyzing tools.

The analyzing Model is as follows:

$Y= \alpha+\beta1X1+\beta2X2+\beta3X3$

Where,

Y= financial performance

X1 is Altman's Z-Score

X2 is the leverage

X3 is the KMV (distant to default) model.

5. Analysis and discussion

5.1. Descriptive Statistics

Table 01 shows the descriptive statistics for the sample of 31 manufacturing companies in Sri Lanka, containing the independent and dependent variables. It shows that the manufacturing companies in Sri Lanka have an average Return on Assets (ROA) value ranging from 0.57 to -0.17 Return on Equity (ROE) of 3.75 to -0.68. The average Altman Z-core for the 31 publicly traded manufacturing companies in Sri Lanka from 2017 to 2022 was 3.48, ranging from 103.37 to -0.53. The leverage ratio displays an average of 0.46, ranging from 8.84 to -23.52. Then, the average of the KMV Model is 11.63 and ranges over 6.09 from 21.21.

Table 01: *Descriptive Analysis*

	N	Mean	Median	Mode	SD	Variance	Minimum	Maximum
Dependent Variables								
ROA	186	0.090	0.0659	-0.001	0.101	0.010	-0.170	0.565
ROE	186	0.172	0.115	-0.006	0.338	0.115	-0.680	3.746

Independent Variable								
Altman Z-core	186	8.936	3.480	-0.005	16.641	276.94	-0.531	103.37
Leverage Ratio	186	0.707	0.467	-23.52	2.132	4.545	-23.52	8.836
KMV Model	186	12.19	11.634	6.090	3.463	11.993	6.085	21.206

Source: Field Survey, 2023, n= 31

5.2 Correlation Analysis

The study has used Spearman's correlation analysis since the dependent variable is categorical. Table 02 correlation matrix depicts the results of this bivariate analysis which explains the impact of financial distress on financial performance. Further, the correlation matrix shows the correlation coefficient and level of significance at 5 percentages and 1 percentage.

The results of the Model on the impact of financial distress on the financial performance of listed manufacturing companies in Sri Lanka are summarized in Table 02. It is noted that the Return on Assets (ROA) and the Altman Z-core show a positive relationship and non-significant ($P>0.05$) impact. Therefore, the hypothesis (H_2) is not supported. In addition, it is noted that Return on Assets (ROA) and the Leverage ratio show a positive relationship and non-significant ($P>0.05$) also, there is a positive relationship between the KMV model and ROA and that is non-significant ($P>0.05$). Therefore, the hypothesis is not supported (H_4) of the study. It is also noted that the Return on Equity (ROE) and the Altman Z-core non-significant ($P>0.05$) negative impact. Therefore, the hypothesis (H_3) is not supported. In addition, it is shown that Return on Equity (ROE) and the Leverage ratio have negative relationship and significant impact ($P<0.05$) and the ROE and KMV Model shows a non-significant ($P>0.05$) negative impact. Therefore, the hypothesis (H_5) is 50% supported and 50% not supported. That result is aligned with some past research study (Rubab, et al., 2022).

Table 02 - *Correlation Matrix*

	ROA	ROE	Altman Z-Score	Leverage Ratio	KMV Model
ROA	1.000				
ROE	0.3629**	1.000			
Altman Z-Score	0.0847	-0.0474	1.000		
Leverage Ratio	0.0877	-0.6193**	-0.113	1.000	
KMV Model	0.1726**	-0.0240	0.377**	-0.116*	1.000

**. Correlation is significant at the 0.01 level

*. Correlation is significant at the 0.05 level

Field Survey

5.3 Multiple Regression Analysis

Further this study used two types of panel estimator approaches. Namely the fixed effect model and the random effect model. The simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectionally but not over time, while all the slope estimates are fixed cross-sectionally and over time. The Hausman specification test was conducted to examine whether individual effects are fixed or random, providing evidence favoring the REM model.

The F-statistics value for the fixed effect model is 0.163. The R-square statistics value of 0.01 shows that the independent variables jointly account for about 1% of the variation in firm performance in the fixed models. The Model established that financial distress does not impact firms' financial performance. Since the P value of this overall Model, 1.1 is 0.1630 (P>0.05). The Altman's z-score has a non-significant impact on ROA since the P>[t] is more than 0.05.

Therefore, the overall model 1.1 is not significant under the 95% confidential level as the Prob F value is more than 0.05 of significant level. Hence, it implies that the hypothesis of H_2 is not supported in this study due to the non-significance of Altman Z-core.

Fixed effect is performed to examine the Return on Equity. The F-statistics value for the fixed effect model was 0.06. The R-square statistics value of 0.0022 shows that the independent variables jointly account for about 0.2% of the variation in firm performance in the fixed models. Model 1.2 established that financial distress does not impact firms' financial performance. Since the P value of this overall model 1.2 is 0.8057 (P>0.05). The Altman's z-score has a non-significant impact on ROE since the P>[t] is more than 0.05. Therefore, overall model 1.2 is not significant under the 95% confidential level as the Prob F value is more than 0.05 of significant level. Therefore, the H_3 hypothesis is unsupported. The leverage ratio has a non-significant impact on ROA since the P>[t] is more than 0.05 and the KMV Model has a significant impact on ROA since the P>[t] is less than 0.05. Therefore, overall model 2.1 is significant under the 95% confidential level as the Prob F value is less than 0.05 of significant level. Hence, the hypothesis of H_4 is supported in this study due to the significance of the KMV Model and the leverage ratio is a significant variable. Therefore, the hypotheses are supported.

A random effect is performed to examine the Return on Equity. The R-square statistics value of 0.39 shows that the independent variables jointly account for about 39% of variation in firm performance in the random models. The KMV Model is not a significant, but the Leverage ratio is a significant variable since the P> [z] value is 0.000 and that is less than 0.05. Therefore, the H_5 hypothesis is supported.

The result under model 2.2 says that there is a significant impact of financial distress on firms' financial performance since the overall Prob> chi2 value is less than 0.05 of significant level.

6. Conclusion

This study investigates the impact of financial distress on financial performance using 31 listed manufacturing companies with a data set covering the 06 years from 2017 to 2022. Based on the results of the descriptive statistics, correlation analysis and multiple regression analysis were made following conclusions.

The correlation analysis indicates that the financial distress measurements, Altman Z-score, and the leverage ratio have a non-significant positive relationship with ROA. Also, financial distress measurements in which the Altman Z-score have a non-significant negative relationship with ROE but a significant negative relationship between the Leverage ratio and ROE. Furthermore, there is a significant positive relationship between the KMV Model and Return on Assets (ROA) and a non-significant negative relationship between the KMV Model and ROE.

The multiple regression results show that financial distress has a non-significant impact on the firm's financial performance of ROA & ROE using Altman Z-Score. According to the KMV model, financial distress significantly impacts the firm's financial performance (ROA), but the leverage ratio is non-significant to the ROA. Other than that, according to the financial leverage financial distress significantly impacts the firm's financial performance (ROE), but the KMV model is non-significant to the ROE.

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