DETERMINANTS OF FINANCIAL DISTRESS OF SELECTED FINANCIAL INSTITUTION IN NEPAL

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled "**Determinants of financial distress of selected financial institution in Nepal**". The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirements for any other academic purposes.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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Anita Rai

December 2023

REPORT OF RESEARCH COMMITTEE

Ms**Anita rai**has defended research proposal entitled "**Determinantsof financial distress of selected financial institution in Nepal**" successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Mr. Rishi Raj Gautam and submit the thesis for evaluation and viva voce examination.

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APPROVAL SHEET

We have examined the dissertation entitle "**Determinants of financial distress of selected financial institution in Nepal**" presented by **Anita Rai**for the degree of **Master of Business Studies (MBS).** We hereby certify that the dissertation is acceptable for the award of degree.

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ABBREVIATION

ANOVA – Analysis of Variance

CAPM – Capital Assets Pricing Model

CAR – Capital Adequacy Ratio

CCD – Credit to Core Capital Plus Deposit Ratio

DPR – Dividend Payout Ratio

DPS – Dividend Per Share

EPS – Earning Per Share

FY – Fiscal Year

GDP – Gross Domestic Product

NBFIs – Nonbank Financial Institutions

NRB – Nepal Rastra Bank

NPL – Non-Performing Loan

ROA – Return on Assets

SD – Standard Deviation

ABSTRACT

The purpose of this study was to investigate the factors that contribute to financial distress in Nepalese banks, focusing on key variables like liquidity, reserves, return on assets, solvency ratio, capital adequacy ratio, and leverage. The primary goal was to identify the factors that contribute to financial distress and their impact on the overall stability of selected financial institutions. The importance of this research stems from its potential to provide useful insights to the Nepalese banking sector. The study aimed to contribute to informed decision-making processes for banks and regulatory bodies by comprehensively analyzing the selected variables, enhancing their ability to proactively manage financial risks.

A quantitative research methodology was used, with Altman's Z-score serving as the dependent variable and selected financial indicators serving as the independent variables. The study used a correlational research design to investigate the relationships between variables. Altman's Z-score was used to assess financial distress levels using historical data from eight Nepalese banks' financial reports. According to the study, liquidity management, reserve levels, and leverage are important factors influencing financial distress in Nepalese banks.

The study provided empirical evidence on the impact of these variables, allowing financial institutions to make strategic decisions. Finally, this study shed light on the factors that contribute to financial distress in Nepalese banks, emphasizing the importance of prudent liquidity management, reserve levels, and leverage ratios. The findings have implications for banking strategic decision-making and policy formulation. The study's reliance on historical financial data, which may not capture real-time market dynamics, is one of its limitations. Furthermore, the scope was limited to specific banks, limiting the generalizability of the findings.

Keywords: Altman's Z-score, capital adequacy ratio, financial distress, Nepalese banks, leverage, liquidity, reserve, return on assets, solvency ratio.

CHAPTER I

INTRODUCTION

1.1 Background of the study

Financial distress, characterized by the inability of a company to meet its financial obligations due to insufficient funds and a disparity between total liabilities and total assets, poses significant challenges for firms and stakeholders. Predicting financial distress is of vital importance for investors, lenders, and participants in capital markets. While extensive research has been conducted on financial distress in developed countries, there is a dearth of studies focusing on developing nations such as Nepal. This research proposal aims to explore the determinants of financial distress in Nepalese financial institutions, shedding light on the unique factors impacting the financial sector in this specific context. Financial distress poses significant challenges to the stability and sustainability of financial institutions. According to Saeed (2019) financial distress is social as well as economic problem which affects the financial and non-financial companies around the globe. Global financial crises have affected not only conventional banking system, but also have affected Islamic banks primarily due to absence of early warning systems. The development of financial sectors is considered as one of vital determinants of the growth of Ethiopian economy, and for secure equitable distribution of the benefits to the society. However, financial distress influences the sectors (Abdu, 2022). It can have far-reaching consequences, including systemic risks, economic instability, and adverse effects on depositors, investors, and the overall financial system. In the context of Nepal, where the financial sector plays a crucial role in the country's economic development, understanding the determinants of financial distress in selected financial institutions is of utmost importance.

Nepal's financial sector consists of commercial banks, development banks, finance companies, and other non-banking financial institutions. The sector plays a vital role in mobilizing savings, channeling credit to various sectors, facilitating economic growth, and promoting financial inclusion. However, like any other financial system, it is susceptible to risks and vulnerabilities, necessitating an in-depth examination of the factors contributing to financial distress.

The Altman Z-score, developed by Edward Altman in 1968, has become a widely used tool for assessing the likelihood of financial distress and bankruptcy. It combines multiple

financial ratios to provide a comprehensive measure of a company's financial health and risk of insolvency. The subject of financial distress on companies has become more important to stake-holders of businesses as management of this situation can lead to either turn-around or total collapse of the business (Mburu, 2018). The Altman Z-score has been applied in various contexts and has demonstrated its predictive power in identifying financial distress.

Previous studies have investigated the determinants of financial distress in Nepal's financial sector, but there remains a need for further research to explore the specific factors that contribute to financial distress in selected financial institutions. By focusing on these institutions, the study can provide valuable insights into the unique challenges faced by different types of financial institutions in Nepal and help identify targeted measures to prevent and manage financial distress. Financial distress has been a global concern since the 1930s, with several major companies filing for bankruptcy. Scholars have defined financial distress as the act of filing for bankruptcy; however, it should be noted that some financially distressed companies do not officially file for bankruptcy due to acquisition or privatization. The recent global financial crisis highlighted the interplay between liquidity and solvency, emphasizing the need for robust liquidity management practices within banks. To address these challenges, the central bank of Nepal has implemented BASEL III regulations to enhance the resilience of individual banks, mitigate system-wide risks, and prevent economic meltdowns.

Previous studies have identified various determinants of financial distress. For instance, research by Shahu (2019) demonstrated that the size of a company has a negative effect on the probability of bankruptcy. An alternative to Altman's models was developed, using ratios as prediction variables to forecast business failure with a high degree of accuracy. Ohlson (1980) identified four statistically significant factors derived from financial statements for assessing the probability of bankruptcy: size, financial structure (total liabilities to total assets), performance measures (net income to total assets), and measures of current liquidity (working capital to total assets and current liabilities to current assets).

Despite the abundance of research on financial distress, most studies have been conducted in developed countries like Australia and the United States. These countries possess different economic structures, well-defined bankruptcy procedures, and specific laws related to bankruptcy. Therefore, applying existing models, such as Altman's Z-score or

Ohlson's O-score, developed for these countries, may not yield accurate results in the context of least developed or developing nations. Altman (2006) assert that a global financial distress model cannot be universally applicable, necessitating the analysis of country-specific data.

Given Nepal's classification as a least developed nation by the United Nations, it is crucial to examine financial distress within the Nepalese context. Despite a significant growth potential and notable developments in the Nepalese capital market, there is a lack of comprehensive analysis of financial distress in this setting. Previous studies by Pradhan (2006) and Shahu (2019) have explored financial distress using primary data and Altman's Z-score model, respectively. However, these studies either relied on executive opinions rather than real financial data or used different accounting ratios to predict financial distress. To address these gaps, this research proposal aims to utilize Altman's Z-score model with four accounting variables (liquidity ratio, reserve ratio, solvency ratio, and return on assets) and two additional variables highlighted in the literature (leverage and capital adequacy ratio) to predict financial distress in Nepalese Financial Institution.

Also, recently for FY 2079/80 in the 3rd quarter Nepal Rastra Bank (NRB) issued enforcement action for several Class "A", Class "B" and Class "C" banks and financial institutions. These financial institutions were Kumari Bank Limited, Rastriya Banijya Bank, Prabhu Bank Limited, Nepal Bank Limited, Agricultural Bank Limited, Himalayan Bank Limited, Corporate Development Bank, Karnali Development Bank and Nepal Finance Limited under several cases related to tax, CAR, and breach of NRB directives. The enforcement actions raise suspicion on the financial activities. Financial distress could also be cause for such action as the bank is forced to necessary steps to manage any rising financial difficulties. The study will also focus on these specific financial institutions. The goal of this research project is to close the knowledge gap on the causes of financial distress in Nepalese Financial Institution. The study attempts to offer important insights into the elements driving financial distress in the Nepalese financial industry using Altman's Z-score model and country-specific data. The results of this study can help improve risk management procedures, regulatory judgments, and the general stability of the Nepalese financial system.

1.2 Problem statement

Nepal, categorized as the least developed nation by the United Nations, is experiencing significant growth and development in its capital market, particularly in terms of trading volumes and growth potential. Financial distress is disruptive and costly, and especially relevant due to the impact on workers, shareholders, customers, suppliers, communities, and the financial entities (Kosikoh, 2014). As the financial sector expands, it becomes increasingly crucial to analyze the determinants of financial distress in Nepalese Financial Institutions using data specific to the Nepalese context (Shahu, 2019). However, there is a notable lack of in-depth analysis of financial distress within this context. Previous research by Pradhan (2006) relied on primary data gathered from Nepalese business executives' opinions rather than actual financial data, limiting its applicability. Similarly, Shahu (2019) examined the impact of financial distress using Altman's Z-score model, but the study employed different accounting ratios and did not fully consider distress risk values in the prediction of financial distress.

Existing literature, including works by Jahur and Quadir (2016) highlights the significance of capital adequacy when measuring financial distress. However, there remains a research gap regarding the application of Altman's Z-score model with specific accounting variables such as liquidity ratio, reserve ratio, solvency ratio, and return on assets, as well as additional variables like leverage and capital adequacy ratio, to predict financial distress in Nepalese Financial Institution.

Financial distress poses a significant challenge to the stability and sustainability of financial institutions in Nepal. Despite previous studies on the determinants of financial distress in the country's financial sector, there is a need for further research specifically focusing on selected financial institutions using the Altman Z-score as an analytical tool. By addressing this research gap, the study aims to explore and identify the key factors that contribute to financial distress in these institutions and provide valuable insights for policymakers, regulators, and financial institutions in Nepal. Existing studies on financial distress in Nepal's financial sector have provided a general understanding of the factors contributing to financial distress. However, there is a lack of specific research focusing on selected financial institutions and their unique challenges. This knowledge gap hinders the development of targeted strategies to prevent and manage financial distress effectively.

The Altman Z-score is a widely used tool for predicting financial distress and bankruptcy. However, its application in the context of Nepal's financial institutions has been limited. By utilizing the Altman Z-score, this study seeks to provide a comprehensive assessment of financial distress risk and identify the financial ratios that significantly impact the likelihood of distress in selected financial institutions.

The high level of non-performing loans in Nepal's financial sector is a major concern. Non-performing loans not only weaken the financial health of institutions but also increase the risk of financial distress. Factors contributing to NPLs include inadequate credit risk assessment, weak loan recovery mechanisms, and challenges in debt resolution.

Financial institutions in Nepal often face challenges related to capital adequacy and liquidity. Inadequate capital levels and liquidity constraints can limit their ability to absorb financial shocks, meet obligations, and maintain operations during economic downturns. Such constraints increase the vulnerability of financial institutions to financial distress. Ineffective risk management practices pose a significant problem in Nepal's financial sector. Insufficient risk identification, measurement, and mitigation strategies can expose institutions to various risks, including credit risk, market risk, and operational risk. Inadequate risk management increases the likelihood of financial distress and its potential impact. Weak corporate governance practices and limited transparency in financial reporting are persistent challenges in Nepal's financial sector. Lack of independent board oversight, inadequate disclosure practices, and conflicts of interest can undermine the financial stability of institutions. Improved governance and transparency are essential for identifying and addressing early warning signs of financial distress. Nepal's economy is susceptible to macroeconomic volatility, including fluctuations in GDP growth, inflation rates, and exchange rates.

Economic downturns or unstable macroeconomic conditions can significantly impact the financial health of institutions, leading to increased financial distress risks. The effectiveness of regulatory and supervisory frameworks plays a crucial role in preventing financial distress. Challenges such as gaps in regulatory oversight, delays in enforcement actions, and weaknesses in prudential regulations can contribute to vulnerabilities within financial institutions. Strengthening regulatory and supervisory mechanisms is essential to mitigating financial distress risks. The findings of this study have practical implications

for policymakers, regulators, and financial institutions in Nepal. Understanding the determinants of financial distress can help policymakers develop effective regulatory frameworks, enhance corporate governance practices, and implement risk management measures tailored to the specific needs of financial institutions. This research bridges the gap between theoretical frameworks and practical implications, providing valuable insights for informed decision-making. Therefore, this study aims to bridge the existing research gap by utilizing Altman's Z-score model with the accounting variables and incorporating leverage and capital adequacy ratio to accurately predict financial distress in Nepalese Financial Institutions.

Following research questions arises in this study:

1. What are the determinants of financial distress in Nepalese financial Institutions?
2. What extent determinants of financial distress related to the performance in Nepalese financial Institutions?
3. Are there any specific accounting variables, including liquidity ratio, reserve ratio, solvency ratio, and return on assets, on the prediction of financial distress in Nepalese Financial Institutions?

1.3 Objectives of the study

This study aims to evaluate the Nepalese Financial Institution's financial distress. The Altman Z-score, leverage, and capital adequacy ratio are good indicators of a several bank's financial difficulties. The objectives of the study can be specified as:

4. To examine the statusof financial distress in Nepalese financial Institutions.
5. To analyse the relationship between determinants of financial distress in Nepalese financial Institutions with their performance.
6. To analyse the impact of specific accounting variables, including liquidity ratio, reserve ratio, solvency ratio, and return on assets, on the prediction of financial distress in Nepalese Financial Institutions.

1.4 Research hypothesis

To achieve the objectives of the study, the following hypotheses are formulated:

H1: Liquidity will have a significant impact on Altman's Z-score.

H2: Reserve will have a significant impact on Altman's Z-score.

H3: Return on Assets will have a significant impact on Altman's Z-score.

H4: Solvency will have a significant impact on Altman's Z-score.

H5: Leverage will have a significant impact on Altman's Z-score.

H6: Capital Adequacy Ratio will have a significant impact on Altman's Z-score.

1.5 Rationale of the study

The significance of this research on the determinants of financial distress in selected financial institutions in Nepal cannot be overstated, as it holds profound implications for various stakeholders within the Nepalese financial industry. The primary beneficiaries of this study encompass financial institutions themselves, regulatory agencies such as the Nepal Rastra Bank, investors, both domestic and foreign, as well as policymakers. The paramount importance lies in its potential to enhance risk management practices within Nepalese Financial Institutions. By meticulously identifying and analyzing the factors contributing to financial distress, this study serves as a pivotal tool for the development of more efficient risk management procedures. Armed with a deeper understanding of the causes of financial difficulty, financial institutions can proactively identify and mitigate potential risks, thereby fortifying the stability of their overall finances.

Regulatory bodies, particularly the Nepal Rastra Bank, stand to benefit significantly from the findings of this study. The insights garnered can inform judicious decision-making in the formulation and implementation of regulatory measures. The study's outcomes may be instrumental in shaping regulations and policies geared towards strengthening the resilience of financial institutions, thus contributing to the establishment of a secure financial system.

Investors, both local and international, are empowered by the results of this research. The financial distress prediction model developed in this study serves as a valuable tool for evaluating the risk profile of Nepalese financial institutions. Armed with this knowledge, investors can prudently manage their exposure to potential financial troubles, enabling them to make well-informed decisions regarding their investment portfolios.

Furthermore, this research addresses a crucial gap in the understanding of financial distress within the Nepalese context, contributing to the overall stability of the financial system. By illuminating the factors that contribute to financial distress, the study aids in preventing future economic collapses and systemic shocks, thereby fortifying the resilience of the financial industry.

In expanding the body of knowledge on financial distress prediction models, this research assesses the applicability and efficacy of such models in the context of Nepalese Financial Institutions. By incorporating accounting variables, leverage, and capital adequacy ratio, the study offers a comprehensive understanding of the multifaceted aspects influencing financial distress in Nepal.

Ultimately, the implications of this study extend beyond individual financial institutions to impact the broader landscape of the Nepalese economy. A robust and resilient banking sector, fostered through the identification and mitigation of factors causing financial hardship, is essential for sustainable economic growth. In this vein, this research plays a pivotal role in advancing Nepal's long-term economic development by contributing to a stronger and more resilient banking sector. In conclusion, the findings of this study hold the potential to guide stakeholders in making more informed decisions, ultimately contributing to the stability of the Nepalese financial system, informed investment strategies, effective risk management, and sound regulatory decision-making.

1.6 Limitations of the study

The major limitation for the study is listed below:

- The study's findings and conclusions may be limited by the availability and quality of data on Nepalese Financial Institutions. The accuracy and completeness of financial data may vary which could impact the reliability and generalizability of the research outcomes.

- The study's scope and resources may restrict the sample size of financial institutions included in the analysis. A smaller sample size may limit the generalizability of the findings to the entire population of Nepalese Financial Institutions. Additionally, the sample selection process may introduce selection bias, potentially affecting the representativeness of the sample.

- Financial distress in Financial Institutions can be influenced by various external factors, such as changes in economic conditions, political stability, and regulatory environment. These factors, beyond the control of the study, may have an impact on the accuracy and applicability of the financial distress prediction model developed.

- Although Altman's Z-score model is widely used for predicting financial distress, it has its limitations. The model assumes a linear relationship between the chosen

accounting variables and financial distress, which may not hold true in all cases. Furthermore, the model was originally developed for companies in developed countries, and its applicability to the Nepalese context may require careful consideration and validation.

- While the proposed financial distress prediction model incorporates several important accounting variables, it may not encompass all possible factors that could influence financial distress. Other unaccounted variables or factors not considered in this study may have an impact on the occurrence of financial distress in Nepalese Financial Institutions.

The study focuses on Financial Institutions, and the findings may not be directly applicable to other sectors or types of financial institutions. Different industries or sectors may have unique characteristics and risk profiles, which may warrant separate analyses and models.

CHAPTER II

LITERATURE REVIEW

This literature review explores the determinants of financial distress in selected financial institutions in Nepal, using the Altman Z-score as a key analytical tool. Financial distress is a critical issue that poses significant challenges to the stability and sustainability of financial institutions. Understanding the factors that contribute to financial distress is crucial for policymakers, regulators, and managers to develop effective strategies for mitigating risks and maintaining financial stability. This review provides an overview of relevant literature, theoretical frameworks, and empirical studies that shed light on the determinants of financial distress in the context of Nepal.

2.1 Introduction

Financial distress refers to a state in which a company or financial institution faces significant difficulties in meeting its financial obligations. The consequences of financial distress can range from bankruptcy and liquidation to severe operational and reputational damage. The Altman Z-score is a widely used tool to assess financial distress risk, incorporating various financial ratios to predict the likelihood of bankruptcy. This review aims to identify the determinants of financial distress within the context of selected financial institutions in Nepal.

2.2 Theoretical review

This section supports the understanding of financial distress determinants in selected financial institutions in Nepal. By considering theoretical frameworks, empirical evidence, and the Altman Z-score, policymakers, regulators, and financial institutions can gain valuable

2.2.1 Agency theory

Agency theory suggests that conflicts of interest between different stakeholders within financial institutions (Handriani et al., 2021) can contribute to financial distress (Daigle & Maloney, 1994). Misaligned incentives, opportunistic behavior, and moral hazard problems may result in risky decision-making, inadequate risk management, and ultimately, financial distress.

2.2.2 Capital structure theory

Capital structure theory explores the relationship between a financial institution's capital structure (Titman & Wessels, 1988) and its risk of financial distress. High levels of debt may increase financial vulnerability (Baldacci et al., 2011), particularly during economic downturns or adverse market conditions. The trade-off theory and the pecking order theory provide insights into how financial institutions determine their optimal capital structure to minimize the risk of financial distress (Agyei, 2020).

2.2.3 Market discipline theory

Market discipline theory emphasizes the role of market forces in mitigating financial distress (Borio, 2004). Transparency, disclosure practices, and the ability of market participants to assess the financial condition (Fung, 2014) of institutions influence market discipline. Effective market discipline mechanisms, such as rating agencies, investor monitoring, and market competition, can contribute to reducing financial distress.

2.2.4 Entropy theory

The Entropy theory or the Balance Sheet Decomposition Measure theory dictates that it is possible to identify the potential risk of financial distress by carefully looking at changes in their balance sheet (Aziz & Dar, 2006). According to this theory, if a firm is not capable of maintaining equilibrium state in their balance-sheet component (Asset and liability) and is not able to control in near future, it is more likely to foresee distress (Aziz & Dar, 2006). Entropy theory employs the Univariate Analysis (UA) and Multiple Discriminate Analysis (MDA) in examining changes in the structure of balance sheets. Univariate Analysis is the use of single accounting-based ratios indicators for the distress risk assessment (Natalia, 2007). The financial ratios of each company, therefore, are compared once at a time and the distinction of those companies through a single ratio with a cut – off value is used to classify a company as either distressed or non-distressed (Monti and Moriano, 2010). MDA, which has developed to overcome the shortcomings of univariate analysis, is a statistical analysis whereby more than one variable is analyzed at the same time (Slotemaker, 2008). So far, Aziz and Dar (2004) and entropy theory used as the theoretical foundation for investing studies on financial distress.

2.2.5 Cash management theory

The proponent of cash management theory dictates that firm must manage the cash inflows and outflows to avoid fund imbalance. According to Aziz & Dar (2006) persistent fund imbalance between cash inflow and cash outflows, which emanate from failure of

cash management function of the firm, will result in financial distress and then, may lead to business failure. Hence, short-term management of corporate cash balances is a major concern of every firm. This is so because it is difficult to predict cash flows accurately, particularly the inflows, and there is no perfect coincidence between cash outflows and inflows (Aziz & Dar, 2006). Due to these facts, management must pay much attention to cash management function of the firm, to immune from the effect of financial distress.

Altman (1968) applied the model to a sample of manufacturing companies in the US. Subsequent studies reaffirmed the applicability of the Z-Score model to privately held companies (Deakin, 1972; Ohlson, 1980), non-manufacturing firms (Grice and Ingram, 2001; Altman, 2000), banks (Sinkey, 1975; Chotalia, 2014), insurance companies (Trieschmann and Pinches, 1973; Pinches and Trieschmann, 1977). Further, the Altman score model proved to be useful to small business in identifying bankruptcies (Lin, 2015). The Altman Z score has a wider application since its introduction and its revised version of 1983 by including private companies. his research is an attempt. Few studies in Nepal concentrated on the application of Altman Z-score model in financial sector. This study examines Nepalese financial sector.

2.3 Empirical review

Several empirical studies have explored the determinants of financial distress in the banking and financial sector. These studies have examined various factors, including capital adequacy, asset quality, management efficiency, macroeconomic conditions, and regulatory environment, to understand their impact on financial distress.

Altman (1968) made significant contributions to the field of financial distress prediction by developing accounting models. Taffler (1982), and Zmijewski (1984) furthered the research on financial distress prediction by conducting early empirical studies in this area. These studies focused on the development and application of financial ratios to predict financial distress.

Whitaker (1999) found that firms become bankrupt due to economic distress resulting from a fall in industry operating income and poor management over a period of five years. The explanation aligns with economic and financial reasons, but Whitaker emphasizes that the fall in operating income is due to poor management.

Madrid-Guijarro et al. (2011) examined factors associated with financial distress among 1006 Spanish manufacturing (SMEs), distinguishing high and low technology industries.

Financial distress is analyses using industrial organizational theory through the Porter's five competitive forces model (external factors) and the resource-based view through strategic variables (internal factors), such as training, planning, innovation, technology, and quality. The study result shows that environmental conditions and some strategic variables are associated with financial distress. The results found that young SMEs with low technology and in a highly competitive environment had a higher probability of financial distress. High bargaining power of buyers and high degree of rivalry among existing competitors were positively associated with financial distress. Financial distress in high-technology industries was not affected by external factors. However, firms with a quality certification have better quality control procedures that ultimately improve financial performance of firms in the technology industries.

Altman and Hotchkiss (2006) and Altman, Sabato, and Wilson (2009) extended Altman's original Z-score model to examine the reorganization process of firms during the post-bankruptcy period. They incorporated accrual-based financial ratios into the model and explored their impact on distress classification. These studies provided insights into the effectiveness of the Z-score model in assessing the financial condition of distressed firms.

Pradhan (2006) conducted a study that focused on the importance of financial ratios in predicting financial distress among Nepalese business executives. The study utilized primary data obtained through questionnaires distributed to executives of 78 companies. The findings of the study revealed a consensus among the executives regarding the significance of net profit margin and short-term liquidity ratios as key indicators of financial distress. This study emphasized the importance of considering financial ratios as predictive tools for identifying financial distress in Nepalese businesses.

Memba (2013) analyzed the causes of financial distress using Weighted Mean Score and Factor Analysis. The study, based on data from 2009 to 2012, identified endogenous variables as the main causes of distress, with improper capital decisions, inadequacy of capital, access to credit, shortage of skilled manpower, poor accounting records, and poor internal management being the most significant factors. Finance Factor was identified as the main cause of financial distress through Factor Analysis.

Kosikoh (2014) sought to establish the effect of liquidity management and financial leverage on the financial distress of Deposit Taking Savings and Credit Cooperative Organizations in Kenya. Using a descriptive survey research design, the study analyzed

data from 68 deposit taking SACCOs. The findings suggested that liquidity management significantly influenced the probability of financial distress, while financial leverage had an insignificant effect on the likelihood of financial distress in savings and credit cooperative organizations in Kenya.

Khaliq et al. (2014) conducted a study to measure financial distress among 30 GLC's listed companies in Bursa Malaysia over five years (2008-2012). The study used Z score statistics model and identified current ratio and debt ratio as significant determinants of financial distress, showing a significant relationship between these variables and Z scores.

Major studies before2014 are explored below:

Author	Variables	Methodology and Findings
Altman (1968)	Financial ratios	Altman made significant contributions to financial distress prediction by developing accounting models. Taffler and Zmijewski furthered research with early empirical studies on financial distress prediction, focusing on the development and application of financial ratios.
Whitaker (1999)	Economic distress, Poor management	The fall in industry operating income and poor management, leading to incessant losses over five years, contribute to business bankruptcy. Whitaker's explanations align with economic and financial reasons, but differ in attributing the fall in operating income to poor management.
Madrid-Guijarro et al. (2011)	External factors (Porter's five competitive forces model), Internal factors (Training, Planning, Innovation, Technology, Quality)	Examined factors associated with financial distress among 1006 Spanish SMEs. Analyzed using industrial organizational theory and resource-based view. Environmental conditions and strategic variables associated with financial distress. Young SMEs with low technology in highly competitive environments have higher probability of distress. High bargaining power of buyers and high degree of rivalry positively associated with financial distress. High-technology industries not affected by external factors. Firms with quality certification in technology industries have better financial performance.

Altman and Hotchkiss (2006), Altman, Sabato, and Wilson (2009)	Accrual-based financial ratios added to Altman's Z-score model	Extended Altman's Z-score model to examine reorganization process of firm's post-bankruptcy. Incorporated accrual-based financial ratios. Explored impact on distress classification. Provided insights into effectiveness of Z-score model in assessing financial condition of distressed firms.
Pradhan (2006)	Significance of financial ratios (Net profit margin, Short-term liquidity ratios) in predicting financial distress among Nepalese businesses	Focused on importance of financial ratios in predicting financial distress among Nepalese businesses. Utilized primary data from questionnaires distributed to executives of 78 companies. Found consensus on significance of net profit margin and short-term liquidity ratios as key indicators of financial distress. Emphasized importance of considering financial ratios as predictive tools.
Memba (2013)	Causes of financial distress	Weighted Mean Score and Factor Analysis used on secondary data (2009-2012). Endogenous variables identified as main causes of financial distress. Most significant causes include improper capital decision, inadequacy of capital, access to credit, shortage of skilled manpower, poor accounting records, and poor internal management. Finance Factor identified as the main cause through Factor Analysis.
Kosikoh (2014)	Liquidity management, financial leverage	Descriptive survey research design: - Liquidity management significantly influences the probability of financial distress in Deposit Taking Savings and Credit Cooperative Organizations in Kenya (p-value = 0.030). - Financial leverage has an insignificant influence on the likelihood of financial distress (p-value = 0.227).
Khaliq et al. (2014)	Altman's Z score (1995)	Assessment of 20 NBFIs (DSE listed) from 2014 to 2018: - 95% of NBFIs were in distress zone during the study period, suggesting potential upcoming bankruptcies. - Immediate attention suggested from government, regulatory authority, and policymakers.

Shahwan (2015) aimed to empirically examine the quality of corporate governance practices in Egyptian-listed companies and their impact on firm performance and

financial distress. The study constructed a corporate governance index (CGI) based on four dimensions. However, the findings indicated relatively low quality of CG practices in Egyptian-listed firms. The study did not support a positive association between CG practices and financial performance, and there was an insignificant negative relationship between CG practices and the likelihood of financial distress.

Gebreslassie (2015), assessed the financial health conditions of the selected private commercial banks using Altman Zscore model (ZETA Analysis) and estimated determinants of financial distress using panel data starting from 2002/03 to 2011/12 and six private commercial banks in Ethiopia using panel data regression. The study analyzed bank specific factors affecting firm's financial distress. ZETA score of the banks is used as the proxy for financial distress. Finding of the study indicates that capital to loan ratio, net interest income to total revenue ratio has statistically significant positive influence on the financial health of banks whereas the nonperforming loan ratio has statically significant negative influence on the financial health of the banks.

Keasey et al. (2015) proposed a theoretical model that argues that the expected financial distress costs in small- and medium-sized enterprises (SMEs) result from the interaction of the financial distress likelihood and the magnitude of the consequences borne whenever financial failure occurs. The empirical evidence from five European countries, where the insolvency laws are representative of prevailing institutional traditions, supports this model. Study found that the ex-ante financial distress costs suffered by a firm depend not only on the likelihood of financial distress but also on the variables that influence the amount of time and costs incurred during the insolvency process. Specifically, financial costs are lower where the capacity to use tangible assets as collateral and short-term debt is greater; they are higher the greater the use of long-term secured debt. Additionally, the effect of these variables is moderated by a firm's ownership and by the nature of the insolvency law in operation. The timely management of these variables can avoid the high costs involved in an involuntary exit.

Shaukat and Affandi (2015) investigated the association between financial distress and financial performance. Their study found a significant association between financial distress and the performance of firms. This finding highlighted the importance of addressing financial distress to maintain and improve financial performance.

Although these studies contribute valuable insights into the determinants of financial distress in the Nepalese context, there is still a need for further research and analysis. Specifically, a comprehensive examination of the determinants of financial distress in Nepalese Financial Institutions using a broader set of accounting variables is warranted. By expanding on the existing literature, this current study aims to fill this research gap and provide a more comprehensive understanding of the factors influencing financial distress in Nepalese Financial Institutions.

Samanhyia et al. (2016) focused on predicting financial distress and bankruptcy in selected listed banks on the stock exchange of Ghana. Using data from 2008 to 2014, the Altman Z-Score and Boone Indicator were employed for analysis. The study highlighted the contribution of poor corporate governance to financial distress and suggested that smaller board size negatively affects corporate performance. It also concluded that in a highly competitive industry, firms become more efficient, leading to enhanced performance and lower likelihood of financial distress.

Anggraini (2016) aimed to find an appropriate financial distress prediction model for Indonesian companies with added corporate governance variables. The study, conducted on 42 companies in the Kompas-100 Index from 2011-2013, concluded that Managerial Ownership had no significant impact on financial distress, while Institutional Ownership had a significant impact. Liquidity as a moderating variable showed no significant influence on the relationship between ownership structure and financial distress.

Major studies during 2015 to 2016 are explored below:

Author	Variables	Methodology and Findings
Shahwan (2015)	Corporate governance practices, Firm performance, financial distress	Construction of Corporate Governance Index (CGI): - Quality of CG practices in Egyptian-listed firms is relatively low. - No positive association between CG practices and financial performance. - Insignificant negative relationship between CG practices and likelihood of financial distress.
Gebreslassie (2015)	Capital to loan ratio, Net interest income to total revenue ratio, Nonperforming loan ratio	Panel data regression. Analysis of six private commercial banks in Ethiopia (2002/03 to 2011/12): - Capital to loan ratio and Net interest income to total revenue ratio have statistically significant positive influence on financial health. - Nonperforming loan ratio

		has statistically significant negative influence on financial health.
Keasey et al. (2015)	Likelihood of financial distress, Magnitude of consequences during insolvency process	Theoretical model proposed. Empirical evidence from five European countries. Ex-ante financial distress costs depend on likelihood of financial distress and variables influencing time and costs during insolvency process. Variables include the capacity to use tangible assets as collateral, short-term debt, and the use of long-term secured debt. Effects moderated by firm's ownership and nature of insolvency law. Managing these variables can avoid high costs in involuntary exit.
Shaukat& Affandi (2015)	Association between financial distress and financial performance	Investigated association between financial distress and performance of firms. Found significant association, emphasizing importance of addressing financial distress for maintaining and improving financial performance.
Samanhyia et al. (2016)	Altman Z-Score, Boone Indicator, Corporate governance, Board size	Analysis of selected listed banks in Ghana using Altman Z-Score and Boone Indicator: - Poor corporate governance contributes to financial distress. - Smaller board size negatively affects corporate performance. - Enhanced competition in the industry leads to improved performance and reduced likelihood of financial distress. - Merging banks contribute to financial stability, with one exception.
Anggraini (2016)	Corporate governance indicators (Managerial Ownership, Institutional Ownership), Financial distress	Panel data regression with Fixed Effect Method approach on 42 companies in the Kompas-100 Index in Indonesia Stock Exchange (2011-2013). Managerial Ownership has no significant impact on financial distress. Institutional Ownership has a significant impact. Liquidity, as a moderating variable, has no significant influence on the relationship between ownership structure and financial distress.

Ong'era et al. (2017) focused on the influence of leverage as a financial antecedent of financial distress among listed companies at the Nairobi Securities Exchange, Kenya. Using logistic regression, the study found a significant relationship between leverage and financial distress, with leverage explaining 79.9% of the variance in financial distress.

The study recommended the development of guidelines on leverage levels for listed companies for sustainability.

Laila and Widihadnanto (2017) conducted a study comparing the financial distress prediction of Islamic and conventional banks by analyzing Bankometer scores. The research spanned the years 2011-2014, comparing four Islamic banks with ten conventional banks. The findings revealed that both Islamic and conventional banks demonstrated a fine level of resilience against financial distress. The study concluded that there was no significant difference in financial distress prediction between Islamic and conventional banks.

Rosa and Gartner (2017) aimed to propose an early warning model for predicting financial distress events in Brazilian banking institutions. Initially, a set of economic-financial indicators is evaluated, suggested by the risk management literature for identifying situations of bank insolvency and exclusively taking public information into account. For this, multivariate logistic regressions are performed, using as independent variables financial indicators involving capital adequacy, asset quality, management quality, earnings, and liquidity. The empirical analysis was based on a sample of 142 financial institutions, including privately and publicly held and state-owned companies, using monthly data from 2006 to 2014, which resulted in panel data with 12,136 observations. In the sample window there were eight cases of Brazilian Central Bank intervention or mergers and acquisitions motivated by financial distress. The results were evaluated based on the estimation of the in-sample parameters, out-of-sample tests, and the early warning model signs for a 12-month forecast horizon. These obtained true positive rates of 81%, 94%, and 89%, respectively. We conclude that typical balance-sheet indicators are relevant for the early warning signs of financial distress in Brazilian banks, which contributes to the literature on financial intermediary credit risk, especially from the perspective of bank supervisory agencies acting towards financial stability.

Udin et al. (2017) purposed to explore the role of corporate governance proxies by ownership structure on the likelihood of firms' financial distress for a sample of 146 Pakistani public-limited companies listed at the Karachi Stock Exchange over the period of 2003-2012. The ownership structure is used as a determinant of corporate governance, while the Altman Z-score is utilized as an indicator of financial distress, as it measures financial distress inversely. The smaller the values of the Z-score, the higher will be the

risk of financial distress. The study found insignificant impact of ownership structure on firms' likelihood of financial distress based on the dynamic GMM method. However, the PLR results indicate that foreign shareholdings have a significant negative association with firms' likelihood of financial distress, in the case of Pakistan. Evidence of a negative and insignificant relationship between institutional ownership and financial distress was observed, which indicates the passive role of institutional investors in Pakistan. The results also reveal a positive and significant relationship between insider's ownership and likelihood of financial distress. This finding is consistent with the entrenchment hypothesis which predicts that insiders are more aligned with their self-interest than outside shareholders' interest when their shareholding increases in the business. Furthermore, the results also reveal insignificant association between government shareholdings and the probability of financial distress.

Sporta (2018) focused on the effect of financial distress factors on the financial performance of commercial banks regulated by the Central Bank of Kenya. The study adopted a descriptive research design, analyzing a census of 43 commercial banks over the period 2005-2015. The research revealed a significant relationship between liquidity, leverage, operational efficiency, asset quality, and capital adequacy as financial distress factors on financial performance. Operational efficiency was identified as the most significant determinant.

Ochieng (2018) conducted study to unfold the issues factors contributing to financial distress in commercial banks. The specific objectives of this study were based on financial leverage, liquidity, credit risks and capital adequacy. It was further guided by relevant theories; modern portfolio theory, agency theory, pecking order theory and cash management theory. The study used research works particularly the ones published in the journal articles which were related to the topic under the study. This was supplemented by information in books concerning financial distress and commercial banks. The information was analyzed through content analysis by considering all the constructs used. The research designs adopted were also put into account. Meta-analysis research design was used to analyze these research works in the academic journals. The findings are of importance to commercial banks and Central bank. It provides information that can help them prevent and manage financial distress. The study found out that financial distress leads to poor performance and failure in commercial banks. The study also showed that financial distress had a significant effect on financial performance of banks where

performance was negatively affected. A rise in financial distress led to a decrease in financial performance and vice versa. Both descriptive and inferential findings showed that financial distress in commercial banks was contributed by leverage, liquidity, credit risks and capital adequacy. The study established the need to reduce financial distress by ensuring financial stability in banks to ensure shareholders confidence. It was recommended that banks should adopt appropriate credit management strategies to control their lending. They should also make effective decisions on the means to fund their operations in different economic and financial conditions. This should indicate when equity or debt funds are suitable. Central banks should be stricter on their regulations concerning liquidity and capital reserves of the commercial banks.

Jahan (2018) investigated the determinants of financial distress in State-Owned Commercial Banks (SCBs) of Bangladesh. Data have been collected from the five SCBs of Bangladesh for the period of 2009-2016 and a panel of 40 observations has been formed. Altman's Z-score is used as a measure of financial distress and Pooled Ordinary Least Square (Pooled OLS) and Panel Corrected Standard Errors (PCSE) methods have been applied to find out the significant determinants of financial distress. The study observed that SCBs in Bangladesh are financially distressed and are characterized by low capital adequacy ratio, high loan loss provision, liquidity problem, poor earning quality and management inefficiency. The regression results of PCSE indicates that management efficiency, earning ability and lending risk are the significant factors to determine financial distress in SCBs of Bangladesh whereas capital adequacy, asset quality and macroeconomic variables have appeared to be insignificant. This study suggests that improvement of governance in the activities of SCBs and their compliance as recommended by the regulatory frameworks will help to address the problems identified and bring a positive change in the banking sector in the years to come.

Kimathi and Mungai (2018) aimed to analyze the effect of financial distress on the profitability of tier three commercial banks in Kenya. The study, which employed a casual research design, sampled twenty commercial banks. Non-performing loans were found to have a negative and statistically significant effect on profitability, while leverage had a positive and statistically significant effect. Liquidity, however, had a positive but statistically insignificant effect on the profitability of tier three commercial banks in Kenya.

Lubawa and Louangrath (2018) examined financial statements from 102 SME firms in Iringa, Tanzania, to determine the impact of multiple loans on the financial health of SMEs. Using parametric and nonparametric tests, the study found that multiple borrowing significantly moved several firms from Altman's "safe zone" to the "gray zone," with a Cohen's d effect size of 0.49.

Mburu (2018) aimed to establish the determinants of financial distress on non-financial firms listed at the Nairobi Securities Exchange. This will specifically study seek to: establish the effect of profitability (ROA), liquidity, leverage, asset-turn over and total assets on Altman Z score (dependent variable). A sample of 10 non-financial under the following segments in the NSE sector categorization; Automobile, Commercial and Services, Energy and Petroleum and Manufacturing and Allied, Construction and Allied, Agricultural sector and Telecommunication. These segments were selected because they possessed the required information and Altman's Z-score, a proxy for financial distress was applied for this companies. The study used secondary data. Secondary data was gathered from financial statements, NSE Investor Handbook, as well as websites of firms studied. Financial information of a five-year period between 2013 and 2017.The study used e views to generate the result findings. Findings of the study revealed that profitability (ROA) and total assets were significant. The study concluded that return on asset and profitability ratios were significant variables that measure a distress in non-financial firms. The results emphasize the need of non -financial firms to focus on their asset investment and efficiency so as not to have financial distress in their operations.

Wesa and Otinga (2018) conducted a study to establish the determinants of financial distress in the context of listed firms at the Nairobi Securities Exchange (NSE). The study, using a descriptive survey design, analyzed 65 listed firms, concluding that liquidity, financial leverage, and capital structure significantly influenced financial distress. The study recommended that firms adopt moderate thresholds to ensure payment of short-term obligations and maintain optimal liquidity and debt levels.

Major studies during 2017 to 2018 are explored below:

Author	Variables	Methodology and Findings
Ong'era et al. (2017)	Leverage, Financial distress	Descriptive research design. Logistic regression model used with 65 listed companies at Nairobi Securities Exchange. Relationship between leverage and financial

		distress established (R2 = .799), indicating that leverage explains 79.9% of the variance in financial distress. High fit in the relationship model suggests leverage as a potential predictor of financial distress in listed companies at Nairobi Securities Exchange, Kenya. Recommends guidelines on leverage levels for sustainability.
Laila and Widihadnanto (2017	Bankometer score	Comparison of Bankometer scores between Islamic and conventional banks: - Both Islamic and conventional banks show a fine level of resilience against financial distress. - No significant difference in financial distress prediction between Islamic and conventional banks.
Rosa and Gartner (2017)	Economic-financial indicators (Capital adequacy, Asset quality, Management quality, Earnings, Liquidity)	Proposed an early warning model for predicting financial distress events in Brazilian banking institutions. Evaluated economic-financial indicators for identifying bank insolvency. Multivariate logistic regressions performed using public information. Based on sample of 142 financial institutions from 2006 to 2014. Eight cases of Central Bank intervention or mergers and acquisitions due to financial distress. Results showed typical balance-sheet indicators are relevant for early warning signs of financial distress in Brazilian banks. Significant contribution to credit risk literature.
Udin et al. (2017)	Ownership structure, Altman Z-score	. Explored the role of ownership structure on the likelihood of firms' financial distress. Sample of 146 Pakistani public-limited companies listed at the Karachi Stock Exchange (2003-2012). Ownership structure used as corporate governance proxy. Altman Z-score as indicator of financial distress. Dynamic GMM method used. Foreign shareholdings have significant negative association with financial distress. Institutional ownership has insignificant association. Insider's ownership has positive and significant relationship with financial distress. Government shareholdings have insignificant association.

Sporta (2018)	Liquidity, Leverage, Operational efficiency, Asset quality, Capital adequacy	. Descriptive research design. Census of 43 commercial banks regulated by CBK (2005 to 2015). Panel data analysis: - Significant relationship between liquidity, leverage, operational efficiency, asset quality, and capital adequacy as financial distress factors on financial performance. - Operational efficiency is the most significant determinant of financial distress on financial performance. Recommendations include focusing on improving financial performance, revising policies for fair competition, and constant monitoring by regulatory bodies.
Ochieng (2018)	Financial leverage, Liquidity, Credit risks, Capital adequacy	Unfolded factors contributing to financial distress in commercial banks. Meta-analysis research design. Examined research works related to financial distress in academic journals. Found that financial distress leads to poor performance and failure in commercial banks. Significant effect on financial performance. Rise in financial distress leads to decrease in financial performance. Contributed by financial leverage, liquidity, credit risks, and capital adequacy. Recommends reducing financial distress for shareholder confidence. Central banks should be stricter in regulations.
Jahan (2018)	Capital adequacy ratio, Loan loss provision, Liquidity, Earning quality, Management efficiency	Investigated determinants of financial distress in State-Owned Commercial Banks (SCBs) of Bangladesh. Collected data from five SCBs (2009-2016). Altman's Z-score used as measure offinancial distress. Pooled OLS and Panel Corrected Standard Errors methods applied. SCBs characterized by low capital adequacy ratio, high loan loss provision, liquidity problems, poor earning quality, and management inefficiency. Management efficiency, earning ability, and lending risk significant factors determining financial distress. Capital adequacy, asset quality, and macroeconomic variables insignificant.
Kimathi and	Non-performing loans,	Multiple regression linear model: - non-performing loans

Mungai (2018)	Leverage, Liquidity, Return on assets ratio	have a negative and statistically significant effect on profitability. - Leverage has a positive and statistically significant effect on profitability. - Liquidity has a positive but statistically insignificant effect on profitability.
Lubawa and Louangrath (2018)	Multiple loans, financial health	Examination of financial statements from 102 SME firms in Iringa, Tanzania. Parametric and nonparametric tests, including Altman Z-test, Springate modified Z, Fulmer Fscore, and Legault CA-score. Multiple borrowing significantly moves several firms from Altman's "safe zone" to the"gray zone," affecting financial performance. Cohen's d indicates a moderate effect size (0.49).
Wesa and Otinga (2018)	Liquidity, Financial leverage, Capital structure, Asset structure	Descriptive survey design. Census of 65 listed firms at NSE. Document analysis sheet for secondary data. Multiple regression: - Liquidity (β=-1.221, p=.004) significantly influences financial distress. - Financial leverage (β=5.002, p=.031) significantly influences financial distress. - Capital structure (β=0.531, p=.025) significantly influences financial distress. - Asset structure (β=6.051, p=.067) has an insignificant positive effect on financial distress. Concluded that liquidity, financial leverage, and capital structure are significant determinants of financial distress. Recommendations include adopting moderate thresholds and maintaining optimal liquidity and debt levels.

Wibowo et al. (2019) investigated the relationship between overvaluation and distress risk in manufacturing companies on the Indonesia Stock Exchange from 2010-2014. The study utilized the RKRV formula for overvaluation and Altman Z Score for distress risk. Statistical analysis showed a strong relationship between an increase in overvaluation and a decrease in distress risk, contributing insights to agency costs, particularly regarding overvalued equity.

Saeed (2019) conducted a study to analyze the soundness of Islamic Banks in Pakistan using the Bankometer model. The study utilized data from 2012-2017 for the complete

population of Islamic Banks in Pakistan. The findings indicated that Islamic Banks in Pakistan maintained a good capital structure. The study emphasized the importance of managing Cost to Income (CI) and Loan to Asset (LA) ratios for efficiency and liquidity performance. According to the Bankometer model, all Islamic banks in Pakistan were deemed to be at a safe level, showing resilience against financial distress.

Suprabha (2019) conducted a study to examine whether the financial default can be predicted using the financial and non-financial factors using the sample Indian companies. The four main categories of financial ratios are profitability, liquidity, activity, and leverage ratios. The non-financial variables considered are company age, proportion of independent directors to the total, promoter shareholding, duality in leadership, board size, institutional and non-institutional variables. Multiple regression was applied to study the impact of financial ratios on financial distress. Logistic regression analysis was applied to study the impact of non-financial factors on financial distress. The investors or potential investors can benefit from these findings on financial distress prediction because these findings would enable them to better assess the probability of the companies experiencing financial distress soon. One financial distress model which included financial factors and another financial distress model which included non-financial factors were constructed in the method section. Based on these two models, the present study developed a financial distress prediction model, which used not only financial factors but also non-financial factors. Further, the event study methodology was adopted to the stock market announcement on financial distress. The investors or potential investors and lenders can benefit from these findings on financial distress prediction because these findings would enable them to better assess the probability of the companies going to experience financial distress soon.

Aman (2019) conducted a study to find the determinants of financial distress in the Ethiopia banking sector. The study mainly employed a quantitative research approach from 2012-2016 using sample data of 15 banks. The study used secondary sources of data to measure the effect of determinants on financial distress multiple regression analysis would be adopted. Findings of the study show that Profitability and liquidity have a positive and significant influence on Debt Service Coverage. On the other hand, average inflation, solvability, and firm size have a negative and significant impact on Debt Service Coverage.

In a similar vein, Shahu (2019) investigated the specific factors that influence distress risk in Nepalese Financial Institutions. The study employed a modified version of Altman's Z-score model as a measure of distress risk. Secondary data from 18 banks listed on the Nepal Stock Exchange Limited for the period from 2008 to 2014 were used for the analysis. The results of the study indicated that liquidity, profitability, and size had a significant positive effect on the Z-score, suggesting a lower distress risk for the banks. This study emphasized the importance of these specific factors in assessing and predicting financial distress in the Nepalese banking sector.

Therefore, this study aims to fill this research gap by applying Altman's Z-score model to Nepalese Financial Institutions and incorporating specific accounting variables, such as liquidity ratio, reserve ratio, solvency ratio, and return on assets. Additionally, the study considers leverage and capital adequacy ratio as additional variables to enhance the prediction of financial distress. By doing so, this research intends to provide a comprehensive understanding of the determinants of financial distress in Nepalese Financial Institutions and their implications for the banking sector's stability and performance.

While these studies have contributed valuable insights into the field of financial distress prediction, there is a gap in the literature regarding the specific context of Nepalese Financial Institutions. Most existing studies have been conducted in developed countries, and their findings may not directly apply to the unique economic and regulatory conditions of Nepal.

Bhandari (2020) conducted a study to examine the impact of financial distress on the financial performance of Nepalese commercial banks. Return on assets and earnings per share are the dependent variables. The independent variables are non-performing loan, leverage, liquidity ratio, capital adequacy ratio, and credit to cash plus deposits (CCD). This study is based on secondary data of 20 commercial banks with 100 observations for the period of 2013/14 to 2017/18. The data are collected from the annual reports of the selected commercial banks. The regression models are estimated to test the significance and impact of financial distress on the financial performance of Nepalese commercial banks. The findings show that leverage, liquidity ratio, and CCD ratio are positively correlated to return on assets which indicates that an increase in leverage ratio leads to an increase in return on assets. Similarly, it indicates that the higher the capital adequacy

ratio, the higher would be the return on assets. Likewise, an increase in CCD ratio leads to an increase in return on assets. The result also shows that there is a negative relationship between earnings per share and non-performing loan which reveals that the higher the nonperforming loan, the lower would be the earnings per share. Likewise, there is a positive relationship between leverage and earnings per share which indicates that an increase in leverage ratio leads to an increase in earnings per share. Likewise, there is a positive relation between CCD ratio and earnings per share which shows that an increase in CCD ratio leads to an increase in earnings per share. The regression results show that the beta coefficients for non-performing loans are negative with earnings per share. The study also shows that the beta coefficients for leverage, liquidity ratio, and CCD ratio are positive with return on assets and earnings per share of Nepalese commercial banks. Key words: Financial distress, financial performance, leverage, and liquidity.

Rahman et al. (2020) conducted a study to examine the financial soundness of selected NBFIs using Altman's Z score from 2014 to 2018. The findings indicated that 95% of the 20 NBFIs were in the distress zone during the study period, suggesting a potential risk of approaching bankruptcy for some institutions. The study recommended immediate attention from the government, regulatory authorities, and policymakers to mitigate factors affecting financial distress in these institutions.

Kurniasih (2021) conducted a quantitative analysis to examine the effect of good corporate governance (GCG) mechanisms and financial performance on the financial distress of banks listed on the Indonesia Stock Exchange. The research involved 45 banks listed in 2019, with a sample of 15 banks selected through purposive sampling. The results indicated that Institutional, Managerial, Independent Commissioner Board Composition, Audit Committee, CAR, and LDR significantly influenced financial distress. Additionally, Non-Performing Loan (NPL) had a positive and significant impact on economic desperation.

Major studies during 2019 to 2020 are explored below:

Author	Variables	Methodology and Findings

Wibowo et al. (2019)	Overvaluation, Distress risk	RKRV formula used for overvaluation, Altman Z Score for distress risk. Statistical output shows that an increase in overvaluation is strongly related to a decrease in distress risk. Findings contribute to understanding agency costs, particularly regarding overvalued equity and its relation to distress risk in manufacturing companies on the Indonesia Stock Exchange (IDX) from 2010-2014.
Saeed (2019)	Bankometer model, Capital structure, Cost to Income (CI), Loan to Asset (LA) ratios	Analysis of Islamic Banks in Pakistan using Bankometer model: - Islamic Banks in Pakistan maintain a good capital structure. - Efficiency and liquidity performance indicators (CI and LA ratios) require attention. - All Islamic banks demonstrate a fine level of resilience against financial distress, as per the Bankometer model.
Suprabha (2019)	Financial and Non-Financial Factors	Regression analysis, logistic regression: - It demonstrated that both financial and non-financial factors could predict financial distress in Indian companies. This information could benefit investors and lenders by helping them assess the probability of companies experiencing financial distress.
Aman (2019)	Profitability, Liquidity, Inflation, etc.	Quantitative approach, multiple regression: - It discovered that profitability and liquidity had a positive and significant influence on Debt Service Coverage in Ethiopian banks. Conversely, average inflation, solvability, and firm size had a negative and significant impact on Debt Service Coverage.
Shahu (2019)	Factors influencing distress risk in Nepalese Financial Institutions. Modified Altman's Z-score model used.	Investigated factors influencing distress risk in Nepalese Financial Institutions. Used modified Altman's Z-score model. Secondary data from 18 banks on Nepal Stock Exchange used. Results indicated liquidity, profitability, and size had significant positive effect on Z-score, suggesting lower distress risk. Emphasized importance of these factors in assessing and predicting financial distress in Nepalese banking sector.
Bhandari (2020)	Financial Ratios	Regression analysis, secondary data: - He found that leverage, liquidity ratio, and credit to cash plus deposits (CCD) ratio were positively correlated with return on

		assets in Nepalese commercial banks. Additionally, non-performing loans had a negative relationship with earnings per share.
Rahman et al. (2020)	Altman's Z score (1995)	Assessment of 20 NBFIs (DSE listed) from 2014 to 2018: - 95% of NBFIs were in distress zone during the study period, suggesting potential upcoming bankruptcies. - Immediate attention suggested from government, regulatory authority, and policymakers.

Handriani et al. (2021) aimed to explore the most significant determinants of financial distress in manufacturing companies in Indonesia. Using multiple regression models, the study analyzed 300 manufacturing companies listed on the Indonesia Stock Exchange. The findings revealed that institutional ownership, firm size, profitability, and board independence were positively related to avoiding financial distress, aligning with pecking order and financial agency theories. However, the board size variable showed an insignificant positive relationship.

Isayas (2021) aimed to examine the effect of internal factors on the financial distress condition of insurance companies in Ethiopia. The study, based on ten-year panel data, concluded that profitability and liquidity levels had a statistically significant positive effect on the financial distress condition of insurance companies, while leverage had a statistically significant negative effect. Efficiency and firm size showed no statistically significant impact.

Ceylan (2021) aimed to examine the impact of both firm-specific and macroeconomic factors on the financial distress risk of firms listed in the Borsa Istanbul Small and Medium Enterprises (SMEs) Industrial Index from 2010 to 2019. Generalized Method of Moments (GMM) estimator was used to determine the potential impact of these factors on financial distress risk. The study found that various firm-specific ratios and macroeconomic indicators had statistically significant impacts on financial distress risk.

Prasad (2021) analyzed the relationship between financial distress and financial performance of Indian commercial banks using multiple regression analysis. Findings of the study suggested that ROE has a negative impact on the Z-score value of banks listed on the National Stock Exchange (NSE). The effect of ROE on the Z-score is statistically significant at the significance level of 5%. Since the banking industry is a service sector,

it is primarily affected by customer satisfaction and loyalty. In this study, the impact of customer satisfaction and loyalty on financial performance is estimated using Structural Equation Modeling (SEM). The results showed that the relationship between satisfaction and loyalty is positive and significant.

Yohannes (2021) collected quantitative data are codded and arranged on excel to make suitable for the selected Z-score; and then finally analyzed and interpreted using descriptive analysis. The finding of the study shows that; on average the selected private commercial banks are categorized under 'Gray Zone'; since the average Z-Score is 1.47; which is in between 1.1 and 2.6 cut-off point of (Altmans', 1993) Z-score. Suggesting banks to take different remedies for their current condition, applying different predictive models to evaluate their current conditions and forecast future financial activities and future research directions are given as recommendation.

Abdu (2022) conducted a review to assess the financial distress situation of the financial sector in Ethiopia. The review identified liquidity, profitability, leverage, firm size, capital adequacy, management efficiency, earning ability, inflation, and interest rate as major determinants of financial distress in Ethiopia. The financial sectors in Ethiopia were seen to have opportunities for trade openness, rapid economic growth, unexploited resources, population growth, and encouragement of privatization.

Gerged et al. (2022) aimed to investigate the possible implications of compliance with corporate governance (CG) provisions, including board composition and ownership structures, on the firm's likelihood of falling into financial distress. The study applies a random-effects logistic regression model as a baseline analysis using a sample of 110 FTSE 350 manufacturing companies from 2014 to 2019. This technique is supported by conducting a two-stage Heckman regression model to overcome the potential existence of endogeneity problems. The results of the study show that board composition and ownership structure are linked in different ways to the likelihood of financial distress. This means that board composition and ownership structure may have helped or hurt the financial distress of the chosen companies. In particular, the independence of the board, the number of women on the board, the independence of the audit committee, and institutional ownership all have a bad effect on the chance of financial trouble. On the other hand, and as expected, ownership concentration is linked to financial distress in a

good way, while the size of the board, the size of the audit committee, and management control have little effect on financial distress.

Kang et al. (2022) aimed to explore a distress indicator of Merton Distance to default (Merton DD), which was constructed with a z-score, possessed improved predictive capability, but reducing equity volatility. The study model possesses the advantages of both hazard and modified Merton DD model, which could timely reflect market volatility and predict when distress would occur. As a demonstration, we applied this model to forecast the financial distress of credit unions in Taiwan.

Bansal (2022) analyzed the opinion of financial institutions about financial distress of Indian companies. It will be helpful to different regulators, lenders, and investors in their decision-making process. Regarding financial distress, this study examined the various types of trends and patterns that have emerged among publicly traded companies over the last fifteen years. It was found that the number of cases referred to the Board for Industrial and Financial Reconstruction (BIFR) has surged after the global financial crisis. Due to the strain on multiple firms' balance sheets, there has been a significant surge in the number of listed firms referred under IBC law. The global slowdown that began in 2008 has reduced listed companies' interest coverage ratios as well as their net profit margins. However, there has been a significant improvement in recent years, with the RBI's series of repo rate cuts beginning in 2015, companies not undertaking new investments, resulting in companies going slow on new borrowings, and many corporate deleveraging with outstanding debt and further improvements in earnings, there has been an improvement in their debt-servicing ability of listed firms. While indicators such as debt-equity, debt- market capitalization has improved, but interest coverage ratio, net profit margin & current ratio demonstrate that the risk of unsustainable business debt remains significant, as many firms have difficulty servicing existing debt, posing concerns to lenders. This emphasizes the importance of keeping a close eye on the business environment.

Major studies during 2021 to 2022 are explored below:

Author	Variables	Methodology and Findings
Kurniasih (2021)	Corporate governance mechanisms, financial performance, Financial Distress	Quantitative approach to collect data, causal research design. Sample of 15 banks from a population of 45 listed on the Indonesia Stock

		Exchange in 2019. Institutional, managerial, independent commissioner board composition, audit committee, CAR, and LDR significantly affect financial distress. Non-Performing Loan (NPL) has a positive and significant impact on economic desperation.
Handriani et al. (2021)	Institutional ownership, Firm size, Profitability, Board independence, Board size, financial distress	Multiple regression models used to analyze 300 manufacturing companies listed on the Indonesia Stock Exchange. Found that institutional ownership, firm size, profitability, and board independence have a positive relationship in avoiding financial distress. Board size has an insignificant positive relationship. Findings consistent with pecking order and financial agency theory.
Isayas (2021)	Profitability, Liquidity, Efficiency, Leverage, Firm size	Altman's Z"-score model, Pooled OLS regression. Ten-year panel data (2009 to 2018) from eight insurance companies in Ethiopia: - Profitability and liquidity have statistically significant positive effects on financial distress. - Leverage has a statistically significant negative effect on financial distress. - Efficiency and firm size have no statistically significant effect on financial health.
Ceylan (2021)	Firm-specific factors (Current ratio, Quick ratio, Asset turnover, Debt ratio, financial leverage, Return on assets), Macroeconomic factors (Economic growth, Exchange rate, Inflation rate)	GMM estimator. Borsa Istanbul SMEs Industrial Index (2010 to 2019): - Current ratio, Quick ratio, Asset turnover, Debt ratio, financial leverage, and return on assets have statistically significant positive impact on financial distress risk. - Percentage change in the consumer price index has a statistically significant negative association with financial distress risk.
Prasad (2021)	ROE, Z-score	Multiple regression, Structural Equation Modeling: - he identified a negative impact of return on equity (ROE) on the Z-score value of Indian banks listed on the National Stock Exchange. This relationship was statistically significant. The study also

		highlighted the positive and significant relationship between customer satisfaction and loyalty on financial performance.
Yohannes (2021)	Z-Score	Collected quantitative data, coded, and arranged on Excel for Z-Score analysis. Selected private commercial banks categorized under 'Gray Zone' on average. Average Z-Score is 1.47. Suggests banks take remedies for current condition and apply predictive models. Recommends future research directions.
Abdu (2022)	Liquidity, Profitability, Leverage, Firm size, Capital adequacy, Management efficiency, Earning ability, Inflation, Interest rate	Review. Identifies major determinants of financial distress in Ethiopia: - Liquidity, profitability, leverage, firm size, capital adequacy, management efficiency, earning ability, inflation, and interest rate. Opportunities include trade openness, economic growth, unexploited resources, population growth, and privatization encouragement.
Gerged et al. (2022)	Random-effects logistic regression model. Two-stage Heckman regression model. Determinants of financial distress in FTSE 350 manufacturing companies.	Investigated implications of compliance with corporate governance provisions on likelihood of financial distress. Used random-effects logistic regression model with FTSE 350 manufacturing companies from 2014 to 2019. Addressed potential endogeneity problems with two-stage Heckman regression model. Results showed board composition and ownership structure linked differently to likelihood of financial distress.
Kang et al. (2022)	Distress indicator: Merton Distance to default (Merton DD) constructed with z-score. Applied to predict financial distress of credit unions in Taiwan.	Explored distress indicator Merton DD, constructed with z-score. Improved predictive capability while reducing equity volatility. Applied to forecast financial distress of credit unions in Taiwan. Demonstrated advantages of hazard and modified Merton DD model. Provided insights for timely reflection of market volatility and prediction of distress occurrence.
Bansal	Trends, Patterns	Analysis of trends, patterns, financial ratios: -he

(2022)		examined various trends and patterns among publicly traded Indian companies. The study found an increase in cases referred to the Board for Industrial and Financial Reconstruction (BIFR) after the global financial crisis. The study also noted improvements in recent

2.5 Research gap

There has been few research done about financial hardship in Nepalese Financial Institutions. Two major literature evaluations shed light on the factors that influence financial strain in this situation.

Research by Pradhan (2006) examined the role of financial parameters in foretelling financial trouble among Nepalese company executives. The study made use of primary data collected through surveys sent to executives of 78 different organizations. The study's conclusions showed that the executives agreed that short-term liquidity ratios and net profit margin are important signs of financial hardship. According to this study's findings (Pradhan, 2006), financial ratios should be considered as potential indicators of financial difficulty in Nepalese firms.

Like this study, Shahu (2019) looked at the elements that affect distress risk in Nepalese Financial Institutions. As a gauge of distress risk, the study used a modified version of Altman's Z-score model. For the period of 2008 to 2014, secondary data from 18 banks listed on the Nepal Stock Exchange Limited were used for the analysis. The study's findings showed that size, profitability, and liquidity all significantly improved the Z-score, indicating a reduced likelihood of bank difficulty. In assessing and forecasting financial hardship in the Nepalese banking industry, this study highlighted the significance of these elements (Shahu, 2019).

Although these studies offer insightful information about the factors that contribute to financial distress in the Nepalese setting, more investigation and analysis are still required. A thorough investigation of the factors influencing financial distress in Nepalese Financial Institutions employing a wider range of accounting variables is specifically called for. This study attempts to close this research gap and offer a more thorough

understanding of the causes affecting financial distress in Nepalese Financial Institutions by extending the existing literature.

CHAPTER III

RESEARCH METHEDOLOGY

3.1 Research design

The study follows descriptive and casual comparative research design. The dependent variable (Altman's Z-score) and the selected independent variables (liquidity, reserve, return on assets, solvency ratio, capital adequacy ratio, leverage) wereanalyses and examined in the study using a quantitative research methodology. This strategy enabled the methodical gathering and analysis of numerical data to arrive at impartial judgments. A casual comparative research design has been used in the research approach to identify any relationships between the independent and dependent variables. The study used of historical data from Nepalese Financial Institutions' financial reports and statements to evaluate their levels of financial distress and the associated values of Altman's Z-score.

3.2 Population and sample size

The population for this study consists of all Financial Institutions in Nepal, which amounts to a total of 54institutions. However, for the purpose of this research, a sample of eight financial institutions were selected. The selected financial institutions include Kumari Bank Limited, Rastriya Banijya Bank, Prabhu Bank Limited, Nepal Bank Limited, Agricultural Bank Limited, Himalayan Bank Limited, Corporate Development Bank, and Nepal Finance Limited.

The choice of these specific banks is based on their recent inclusion in the enforcement action issued by Nepal Rastra Bank (NRB) during the 3rd quarter of FY 2079/80, indicating a potential indication of financial distress. By including these banks in the sample, the study aims to investigate and analyses the determinants of financial distress in Financial Institutions that have been identified as having potential issues.

The sample size of eight financial institutions is a purposive sample selected based on specific criteria, such as their inclusion in the enforcement action. While the sample size may appear small compared to the total population, it is important to note that a purposive sampling technique allows for focused and targeted analysis of specific cases. This sample size is considered appropriate for conducting a detailed examination of the selected banks and their financial distress determinants.

It is important to acknowledge that the findings of the study may pertain specifically to the selected banks and may not be generalizable to all financial institutions in Nepal. However, the chosen sample provides valuable insights into the determinants of financial distress within the context of the enforcement action and can contribute to the existing knowledge on this subject.

3.2.1 Sampling design

Purposive sampling technique employed in this study sample design. Purposive sampling is a non-random sample strategy where participants who meet requirements or possess certain traits relevant to the research purpose were be chosen.

As a result of their inclusion in the enforcement action taken by Nepal Rastra Bank (NRB) during the third quarter of FY 2079/80, which may have been a sign of financial distress, the sample of eight financial institutions in this case was chosen. To analyze the factors that contribute to financial hardship in Nepalese Financial Institutions, these banks were be identified as having traits associated with it.

The sample design for the study employed purposeful sampling. A non-random sample approach called purposeful samplingselects individuals who fit specific criteria or exhibit characteristics that are pertinent to the study's goal. The sample of eight Financial Institutions in this case was selected due to their presence in the enforcement action carried out by Nepal Rastra Bank (NRB) during the third quarter of FY 2079/80, which may have been an indicator of financial hardship. The characteristics of these financial institutions was examined to analyze the variables that contribute to financial hardship in Nepalese Financial Institutions.

3.3 Source of data

For data gathering and analysis, the study predominantly used secondary sources of information. The annual reports of the chosen financial institutions were the source of the data. These reports offer thorough financial data that can be used to compute financial ratios and the Altman Z-score, such as balance sheets, income statements, and cash flow statements. Key performance metrics, risk factors, and other pertinent details pertaining to the banks' financial stability were also included in the yearly reports.

Regulatory reports released by organizations like Nepal Rastra Bank can also be a valuable source of secondary data. These reports might provide details on banking laws, enforcement procedures, capital adequacy standards, and other regulatory elements that

might be useful in comprehending the background and contributing elements of financial crises. For theoretical frameworks, earlier studies, and conclusions pertaining to financial distress and its determinants, one can consult academic journals, research papers, and publications linked to financial distress, the banking industry, and pertinent economic indicators in the Nepalese context. These resources can offer insightful information and enhance the interpretation of the secondary data gathered.

The study cananalyze the causes of financial distress in Nepalese Financial Institutions based on trustworthy and complete information available in the public domain by using secondary data from the annual reports of Financial Institutions, relevant regulatory reports, and existing research papers.

3.4 Conceptual framework

To better understand the causes of financial hardship in Nepalese Financial Institutions, the conceptual framework of the research proposal examines these causes. The study's dependent variable is Altman's Z-score, a popular measure of financial distress. The Z-score measures the chance of a company entering financial hardship by using a variety of financial ratios in its calculation (Niroula, 2021).

The dependent variable is the Altman's Z-score (Financial Distress), and the independent variables comprises of factors related specifically to financial distress.
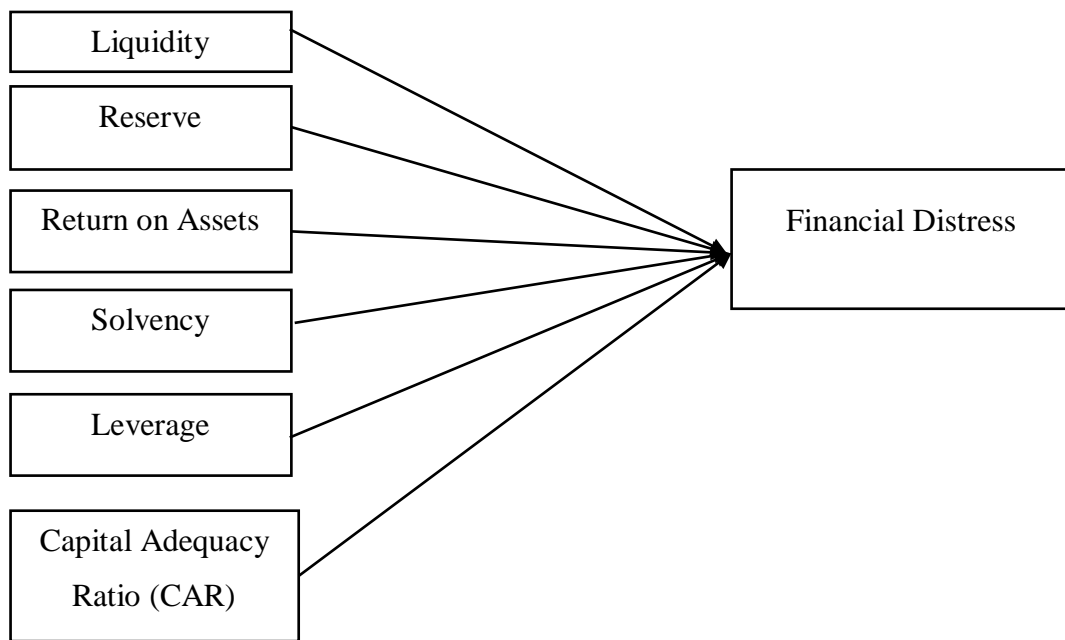
Figure 1: Conceptual Framework, Source: (Niroula, 2021)

Independent Variables   **Dependent Variable**

The independent variables identified in the conceptual framework are:

- Liquidity: This variable measures the ability of a bank to meet its short-term obligations. It is typically assessed using ratios such as current ratio or quick ratio, which reflect the availability of liquid assets to cover current liabilities.

- Reserve: The reserve ratio refers to the proportion of a bank's assets that is set aside as reserves to cover potential losses or contingencies. It represents a buffer that helps mitigate financial risks and impacts the overall financial stability of the bank.

- Return on Assets (ROA): ROA measures the profitability of a bank by indicating the amount of profit generated relative to its total assets. A higher ROA indicates better financial performance and lower likelihood of financial distress.

- Solvency Ratio: The solvency ratio assesses the long-term financial viability of a bank by comparing its long-term debt or liabilities to its total assets. It provides an indication of the bank's ability to meet its long-term financial obligations.

- Capital Adequacy Ratio: The capital adequacy ratio measures the proportion of a bank's capital (primarily equity) in relation to its risk-weighted assets. It reflects

the bank's ability to absorb potential losses and acts as a regulatory requirement to ensure the bank's financial stability.

- Leverage: Leverage refers to the extent to which a bank relies on debt to finance its operations and investments. Higher leverage indicates higher financial risk, as increased debt levels can strain a bank's financial resources and increase the likelihood of financial distress.

Altman's Z-score

A classification model called the Altman Z-score is used to evaluate a company's or institution's likelihood of experiencing financial trouble. Based on specified criteria, the Z-score findings are interpreted and analyzed, giving information about the financial health and probable bankruptcy risk. The following categories apply to the Z-score values:

Z < 1.80: Bad Indication - This range suggests that there is a substantial likelihood that the financial institution may experience bankruptcy issues. It implies that to keep the business from experiencing a serious financial crisis, immediate and necessary actions are required. This low Z-score points to a substantial asset-to-liability imbalance, liquidity problems, and potential operational challenges.

Z-scores between 1.80 and 2.99 indicate that the financial institution is in a good situation, which is one of relative safety and stability. It shows that there are now no serious financial difficulties or bankruptcy threats for the company. To ensure ongoing financial stability, it is still crucial to closely monitor the financial indicators and keep a proactive attitude.

Z > 2.99: Very Good Position—Z-scores above 2.99 signify that the institution is in a very good financial position. It implies that there is little chance of financial crisis or insolvency for the company given its robust financial position. These ratings demonstrate a balanced capital structure, strong profitability, and prudent risk management.

It is simpler to evaluate the financial stability of a Nepalese Financial Institutions by interpreting the Altman Z-score considering these criteria. The classification assists in identifying both institutions that are currently stable and well-positioned in terms of their financial viability and those that need immediate attention and action to alleviate financial distress.

The conceptual framework shows the linkages between the dependent variable (Altman's Z-score) and the independent variable (liquidity, reserve, ROA, solvency ratio, capital adequacy ratio, and leverage). It looks at how changes in these independent variables affect how likely it is that someone may experience financial hardship as shown by the Z-score. The framework offers a methodical way to investigate what causes financial hardship in Nepalese Financial Institutions and how various financial indicators interact with one another.

3.5 Methods of data analysis

Correlational analysis was used in this study to assess the data that were acquired. In the same way, means and other statistical techniques were used. With the use of e views software tools, the gathered data was thoroughly reviewed. The association between the variables was demonstrated using the Pearson's correlation coefficient. To investigate the impact of independent factors on the dependent component, regression analysis was also performed.

3.5.1 Descriptive analysis

Descriptive statistics are employed in research to describe the fundamental properties of data. They provide a summary of the metrics and sample. They act as the cornerstone for simple graphical analyses as well as most quantitative data studies. Sometimes it is necessary to separate descriptive and inferential statistics. Instead, we may make use of inferential statistics to evaluate the accuracy or likelihood of the differences between groups discovered in this study. Inferential statistics use data to estimate general circumstances, while descriptive statistics only describe what is happening. Descriptive statistics can be used to display numerical data in an intelligent and understandable way. Research studies can employ a variety of strategies. Any method would allow for the investigation of a sizable population. Many different types of data can be interpreted using descriptive statistics. A significant amount of information is condensed into a digestible amount of language by each descriptive statistic.

3.5.2 Pearson correlation Analysis

A bivariate test called correlation determines the strength and direction of a relationship between two variables. If a link is strong, the correlation coefficient can range from +1 to -1. The two variables are closely connected if the score is 1. As the correlation coefficient value approaches 0, the relationship between the two variables becomes less significant.

The direction of the association is indicated by the sign of the coefficient; a + sign indicates a positive link, whereas a - sign indicates a negative link. In this investigation, the Pearson correlation coefficient was used. The Pearson correlation coefficient assesses the strength of a linear link between two variables (r).

The Pearson correlation coefficient's (r) range is between one and one hundred. There is no association between the two variables if the value is 0. Positive relationships are shown by numbers greater than zero, which means that as the value of one variable increases, so does the value of the other. A negative association is one in which the value of one variable decreases as the value of the other variable increases and is defined as one with a value less than 0. So, it can be used to determine how closely two variables are related. The Pearson Correlation Coefficient not only displays whether two variables are connected or not, but also how closely those variables are related (Sekaran & Bougie, 2016).

3.5.3 Regression analysis

The influence of an independent variable on the dependent variable alone or when paired with other moderating variables is determined using multi-linear regression analysis. The following regression model has been suggested for the study:

The regression equation for predicting Altman's Z-score (Financial Distress) using the independent variables Liquidity (L), Reserve (R), Return on Assets (ROA), Solvency Ratio (SR), Capital Adequacy Ratio (CAR), and Leverage (LVG) can be represented as follows:

Altman's Z-score = $\beta_0 + \beta_1$Liquidity + β_2Reserve + β_3Return on Assets + β_4Solvency Ratio + β_5Capital Adequacy Ratio + β_6Leverage + ε

In this equation:

β_0 represents the intercept or constant term.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$, and β_6 are the regression coefficients associated with the respective independent variables.

ε represents the error term, accounting for the unexplained variation in the dependent variable.

Regression analysis using statistical software e views is required to estimate the values of the regression coefficients ($\beta1$, $\beta2$, $\beta3$, $\beta4$, $\beta5$, and $\beta6$). The strength and direction of the correlations between the independent variables and Altman's Z-score was shown by the coefficients. You may forecast the value of Altman's Z-score using the estimated regression equation and the values of the independent variables (Niroula, 2021).

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CHAPTER IV

RESULT AND DISCUSSION

This chapter presents the findings and a discussion of the data analysis that was done. Data analysis refers to the stages of the study during which secondary data is gathered and findings are made throughout the research phase. After evaluating the data, conclusions are made. It presents the main conclusions drawn from the data analysis, which are formulated as research goals through the application of several quantitative data analysis techniques.

The results of data analysis are produced using tools such as descriptive statistics, correlation, and regression analysis. To aid comprehension, the derived data is given in the form of tables and figures. The results of the data analysis are described in detail in the following subsection.

4.1 Trend Analysis

The data presented below shows the trend of various factors within the scope of the study over the last eight years.

Liquidity Ratio

Table 1: *Liquidity Ratio (%)*

Year	Min	Max	Mean	S.D.	CV
71/72	0.8%	36.4%	16.7%	12.3%	140.06%
72/73	0.8%	34.5%	16.0%	11.1%	154.33%
73/74	1.4%	115.2%	29.8%	34.4%	171.27%
74/75	6.3%	187.8%	43.9%	56.2%	183.64%
75/76	4.1%	330.5%	56.2%	104.5%	179.08%
76/77	4.5%	152.3%	37.6%	45.5%	55.95%
77/78	4.2%	141.9%	33.5%	43.6%	40.68%
78/79	2.3%	84.5%	23.9%	25.5%	15.58%

|	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79
Mean	16.70%	16.00%	29.80%	43.90%	56.20%	37.60%	33.50%	23.90%
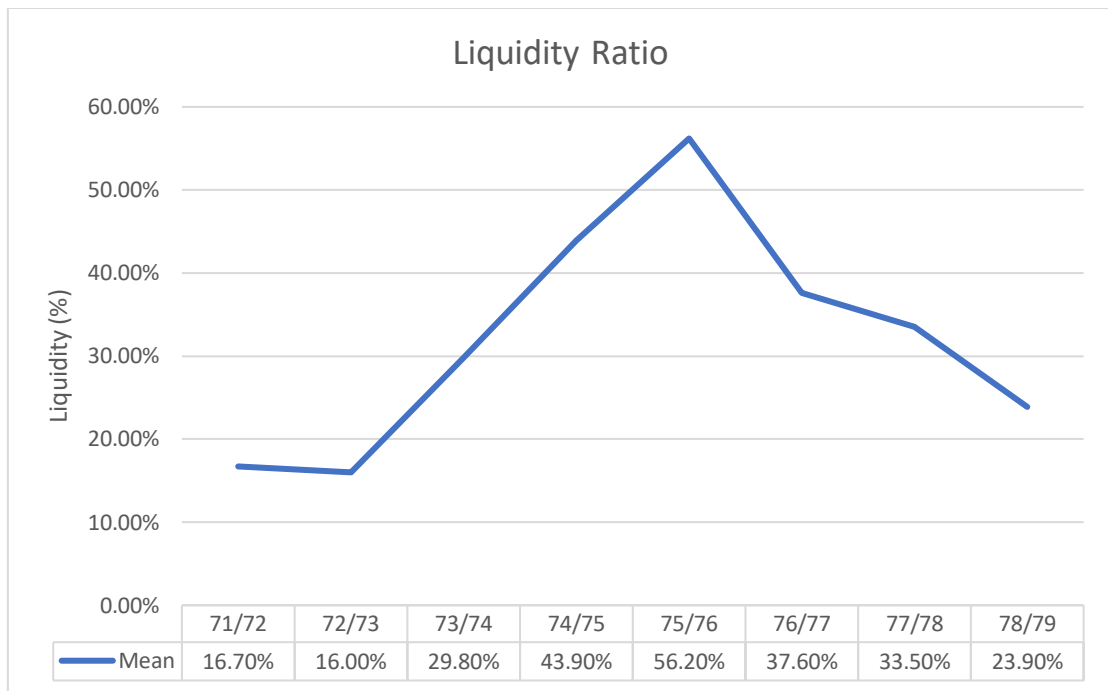
Figure 2: Liquidity Ratio

Table 1 shows the summary statistics for the Liquidity Ratio. The standard deviation values (ranging from 11.1% to 104.5%) show that the Liquidity Ratio varies over time. This indicates that the entity's liquidity position fluctuates over time.

The mean Liquidity Ratio values range from 16.0% to 56.2%. These figures represent the entity's average liquidity level for each year. The variability of the Liquidity Ratio increases significantly in the years 73/74 and 74/75, as evidenced by higher standard deviation values (34.4% and 56.2%). This suggests that the liquidity position was more volatile during those times.

The year 75/76 has the highest maximum Liquidity Ratio (330.5%) and the highest standard deviation (104.5%). This indicates a high level of liquidity or potential volatility in the entity's liquidity during that year. The Liquidity Ratio decreases in mean values and variability in the following years, 76/77 to 78/79, compared to the preceding years. Overall, the Liquidity Ratio demonstrates variations in liquidity levels and volatility over time, with some years experiencing higher levels of liquidity and greater volatility. These statistics provide information about the entity's liquidity position and can be used to assess its ability to meet short-term obligations and fund operations.

Reserve Ratio

Table 2: *Reserve Ratio (%)*

Year	Min	Max	Mean	S.D.	CV
71/72	0.035%	6.425%	2.188%	2.04%	20%
72/73	0.194%	9.193%	2.429%	2.75%	22%
73/74	0.195%	9.180%	2.414%	2.72%	27%
74/75	-52.217%	5.350%	-5.196%	17.92%	27%
75/76	-98.482%	5.491%	-12.782%	33.27%	24%
76/77	-53.047%	5.061%	-5.873%	18.14%	10%
77/78	-24.260%	5.136%	-0.513%	9.08%	6%
78/79	-16.474%	4.484%	0.049%	6.38%	3%

Table 2 shows the Reserve Ratio data in summary statistics. The Reserve Ratio shows relatively low variability for the years 71/72 to 73/74, as evidenced by the small standard deviation values (ranging from 2.04% to 2.72%). The mean values are also consistent, ranging from 2.188% to 2.429%. The Reserve Ratio has a significant negative value in the year 74/75, with a mean of -5.196%. This suggests a possible imbalance or inadequacy in reserve holdings during that time.

	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79
Mean	2.19%	2.43%	2.41%	-5.20%	-12.78%	-5.87%	-0.51%	0.05%
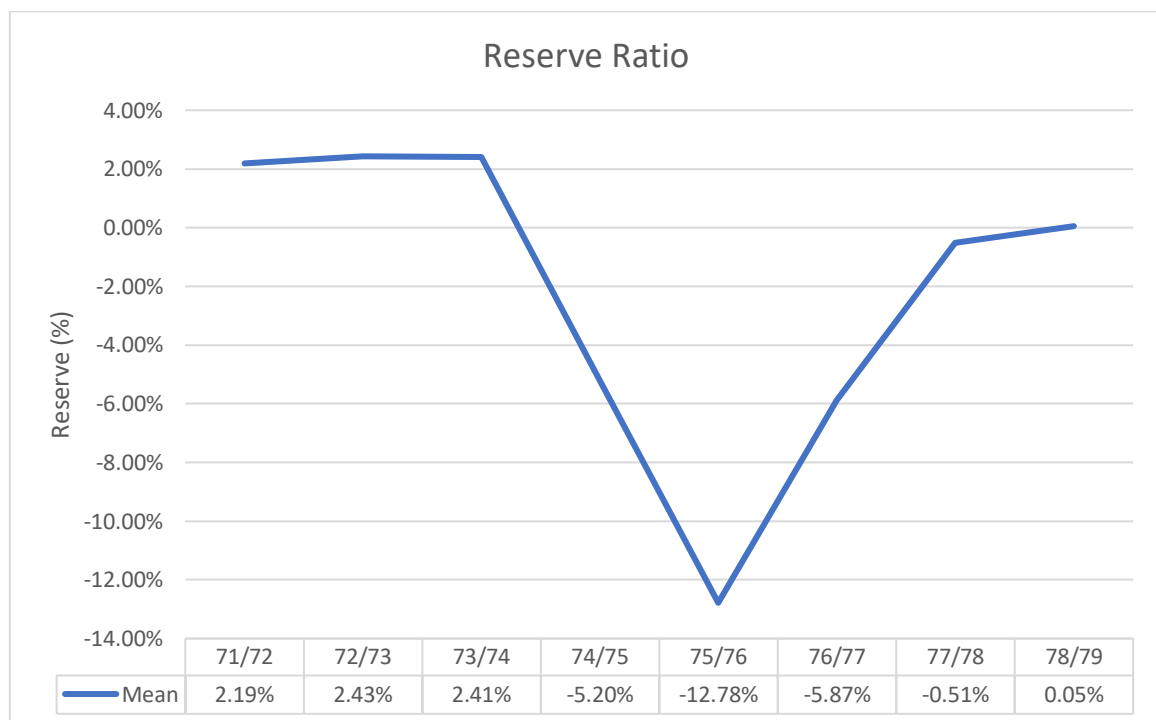
Figure 3: Reserve Ratio

The Reserve Ratio has an even larger negative value in 1975/76, with a mean of -12.782%. This indicates a more severe shortage or inadequacy in reserve holdings during that year. The Reserve Ratio shows negative mean values in the following years, 76/77 to 78/79, but the magnitudes are smaller than in 74/75 and 75/76. Overall, the Reserve Ratio varies and has negative values in some years, indicating potential reserve adequacy issues or imbalances for the entity during those years.

Return on Assets

Table 3: *Return on Assets (%)*

Year	Min	Max	Mean	S.D.	CV

71/72	-45.14%	30.39%	2.89%	20.00%	28%
72/73	3.14%	93.69%	16.97%	29.05%	27%
73/74	4.26%	71.61%	16.52%	21.50%	29%
74/75	2.84%	24.09%	9.68%	7.22%	13%
75/76	0.20%	9.90%	5.87%	2.97%	9%
76/77	0.43%	31.12%	7.24%	9.22%	9%
77/78	-0.10%	11.52%	4.54%	3.11%	3%
78/79	0.00%	4.29%	3.06%	1.26%	1%
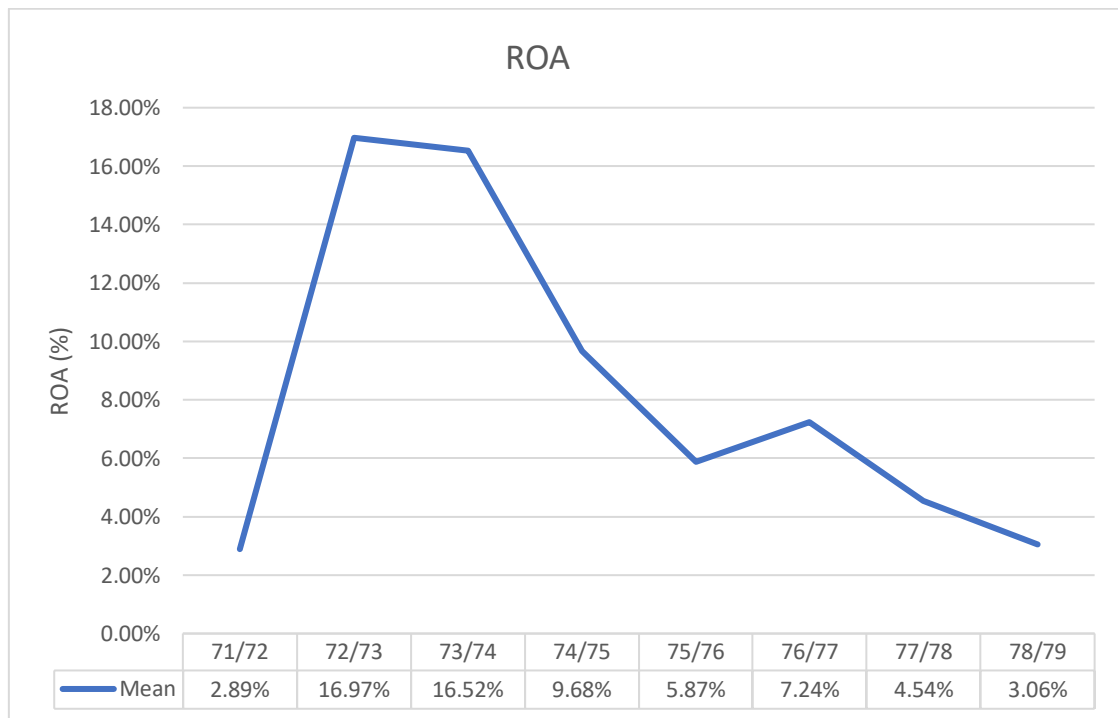
Figure 4: ROA

Table 3 summarizes statistics for Return on Assets (ROA). The standard deviation values (ranging from 2.97% to 29.05%) indicate that the ROA varies over time. This indicates that the entity's profitability fluctuates over time.

The mean ROA values range from 3.06% to 16.97%. These figures represent the entity's annual average profitability as measured by the return on assets. The higher standard

deviation values (29.05% and 21.50%) reflect the relatively high variability in the ROA in the years 72/73 and 73/74. This indicates that the entity's profitability was more volatile during those periods.

When compared to previous years, the year 74/75 has a lower standard deviation (7.22%), indicating less variability in profitability. The ROA values from 75/76 to 78/79 show a decrease in mean values and a decrease in variability when compared to the preceding years. Overall, the ROA demonstrates variations in profitability and volatility over time, with some years experiencing higher levels of profitability and greater volatility. These statistics provide insight into the entity's profitability and can aid in determining its ability to generate returns on its assets.

Solvency Ratio

Table 4: *Solvency Ratio (%)*

Year	Min	Max	Mean	S.D.	CV
71/72	0.0%	343.8%	57.6%	110.7%	500%
72/73	0.0%	301.4%	62.5%	103.8%	543%
73/74	0.0%	872.9%	150.0%	287.7%	605%
74/75	0.0%	702.6%	127.4%	232.8%	466%
75/76	0.0%	671.4%	134.0%	232.1%	357%
76/77	0.0%	271.2%	72.5%	112.3%	91%
77/78	0.0%	188.2%	53.2%	77.8%	55%
78/79	0.0%	127.1%	31.9%	43.2%	24%
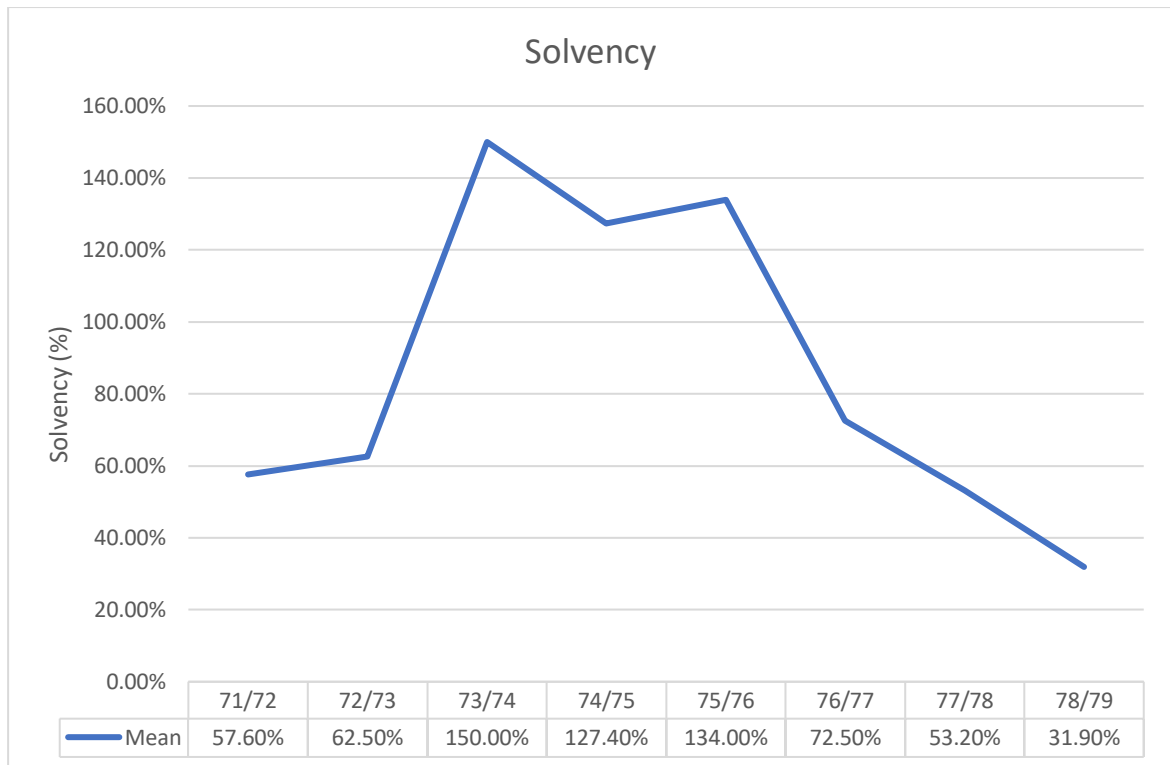
Figure 5: Solvency

The summary statistics for the Solvency data are provided in table 4. The Solvency measure varies over time, as evidenced by the high standard deviation values (ranging from 43.2% to 287.7%). This indicates that the entity's financial solvency fluctuates over time. The Solvency measure's mean values range from 31.9% to 150.0%. These figures represent the entity's average level of financial solvency for each year.

The standard deviation values for the years 73/74 and 74/75 are relatively high (287.7% and 232.8%, respectively), indicating greater variability in solvency levels during those periods. In comparison to the preceding years, the solvency values in the years 75/76 to 78/79 show a decreasing trend in mean values and reduced variability. The year 78/79 had the lowest mean Solvency value (31.9%) and the lowest standard deviation (43.2%), indicating a lower average solvency level with less variability.

Overall, the Solvency indicator reflects the entity's financial stability and ability to meet long-term obligations. The statistics show that solvency levels fluctuate over time, with some years experiencing higher solvency and greater fluctuations. These statistics provide information about the entity's financial health and stability.'

Leverage Ratio

Table 5: *Leverage Ratio (%)*

| Year	Min	Max	Mean	S.D.	CV
71/72	34.66%	115.20%	84.17%	21.26%	41%
72/73	28.55%	98.45%	80.72%	20.38%	41%
73/74	20.13%	90.49%	76.07%	21.94%	44%
74/75	18.55%	90.49%	71.25%	26.61%	38%
75/76	28.50%	90.47%	72.72%	24.74%	32%
76/77	34.19%	91.37%	76.57%	20.22%	22%
77/78	43.53%	101.70%	79.82%	19.03%	18%
78/79	53.55%	92.90%	81.41%	13.30%	10%
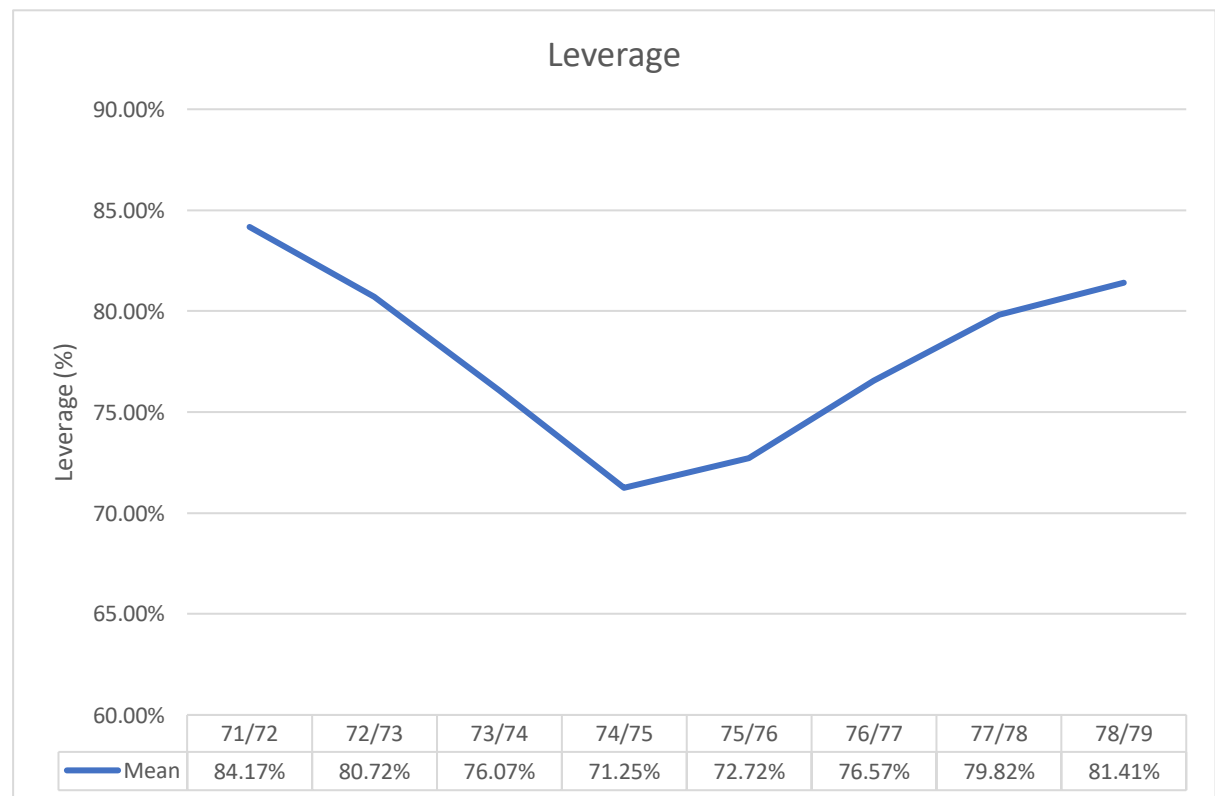
Figure 6: Leverage

The summary statistics for the Leverage Ratio data are shown in table 5. The standard deviation values (ranging from 13.30% to 26.61%) show that the Leverage Ratio measure varies over time. This indicates that the entity's leverage or debt relative to equity

fluctuates over time. The Leverage Ratio's mean values range from 71.25% to 84.17%. These figures represent the entity's average level of leverage for each year.

The standard deviation values for the years 71/72 and 77/78 are relatively higher (21.26% and 19.03%), indicating greater variability in leverage levels during those periods. The mean values of the Leverage Ratio from 71/72 to 73/74 show a decreasing trend, indicating a decrease in the level of leverage during those years. In the years 73/74 to 78/79, the Leverage Ratio values show a relatively stable mean value with minor fluctuations. In comparison to other years, the year 78/79 has the highest mean Leverage Ratio value (81.41%) and the lowest standard deviation (13.30%), indicating a higher average leverage level with less variability.

Overall, the Leverage Ratio measure reflects the entity's level of debt relative to equity and indicates its financial risk and stability. The statistics provide insights into the leverage levels over the years, with some years experiencing higher leverage and greater fluctuations. These statistics can help assess the entity's financial risk and its ability to meet its debt obligations.

Capital Adequacy Ratio

Table 6: *Capital Adequacy Ratio (%)*

Year	Min	Max	Mean	S.D.	CV
71/72	-28.5%	17.2%	3.5%	14.3%	38%
72/73	-25.6%	17.2%	4.2%	14.2%	39%
73/74	-19.7%	20.4%	10.4%	11.9%	40%
74/75	6.8%	38.3%	15.7%	9.2%	47%
75/76	11.2%	111.0%	30.4%	32.4%	54%
76/77	11.2%	40.1%	20.8%	10.2%	18%
77/78	13.1%	83.4%	29.5%	26.1%	22%
78/79	11.8%	56.7%	22.9%	16.4%	9%

|	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79
——Mean	3.50%	4.20%	10.40%	15.70%	30.40%	20.80%	29.50%	22.90%
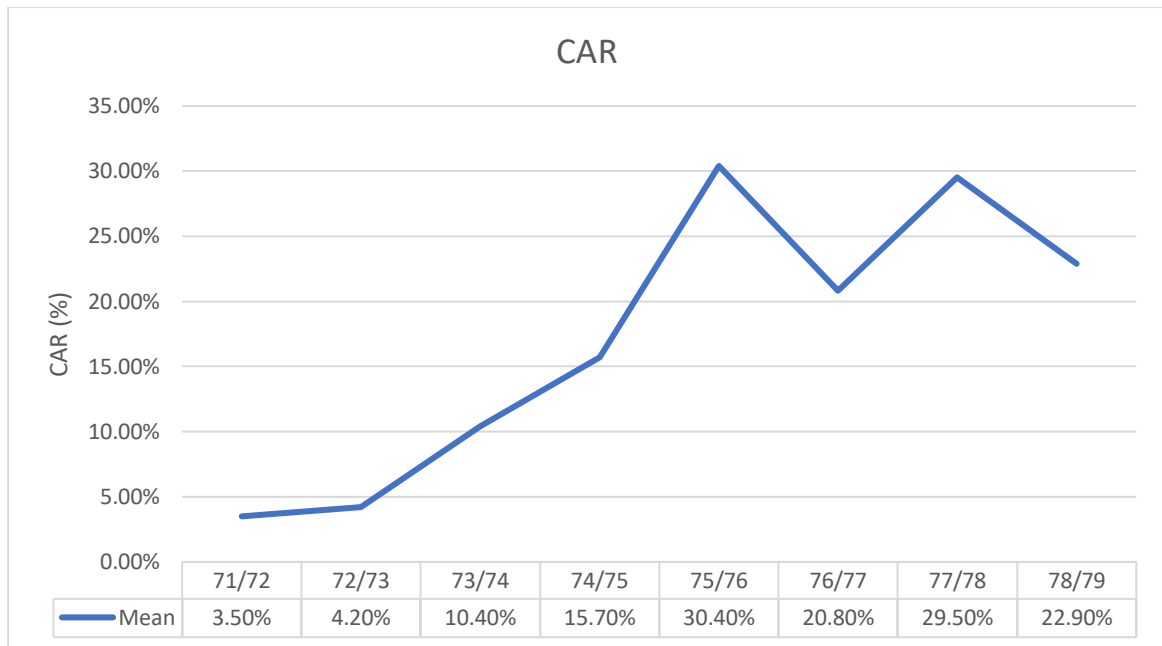
Figure 7: CAR

Table 6 summarizes the Capital Adequacy Ratio data. Typical Deviation in the Capital Adequacy Ratio data, this represents the measure of dispersion or variability. It demonstrates how far the values deviate from the mean. The standard deviation values for the Capital Adequacy Ratio (ranging from 9.2% to 32.4%) show that the measure varies over time. This suggests that the entity's capital adequacy or ability to meet its regulatory capital requirements fluctuates over time.

The mean Capital Adequacy Ratio values range from 3.5% to 30.4%. These figures represent the entity's average level of capital adequacy for each year. The standard deviation values for the years 75/76 and 77/78 are relatively higher (32.4% and 26.1%, respectively), indicating greater variability in capital adequacy levels during those periods. The Capital Adequacy Ratio values from 71/72 to 74/75 show a gradual increase in mean values, indicating that the entity's capital adequacy improved during those years. Capital Adequacy Ratio values from 1975/1976 to 1978/1979 show a relatively stable mean value with minor fluctuations.

The year 75/76 has the highest mean Capital Adequacy Ratio value (30.4%) and the highest standard deviation (32.4%), indicating a relatively higher average level of capital adequacy but with significant variability when compared to other years. Overall, the Capital Adequacy Ratio measures an entity's ability to keep enough capital on hand to absorb potential losses and meet regulatory requirements. The statistics provide insight

into capital adequacy levels over time, with some years having higher capital adequacy and higher fluctuations. These statistics can aid in determining the entity's ability to withstand financial shocks while also meeting its regulatory obligations.

Altman's Z-score

Table 7: *Altman's Z-score*

Year	Min	Max	Mean	S.D.	CV
71/72	0.28528	3.76447	0.82735	1.01134	5.726443611
72/73	0.22025	3.07855	0.99108	0.98197	6.23154185
73/74	0.30499	8.99867	2.07347	2.56261	6.956375101
74/75	0.08835	7.77281	1.8428	2.33934	5.816354287
75/76	0.12349	9.13367	1.94304	2.64477	4.891733382
76/77	0.14596	4.0156	1.13664	1.19392	1.374788459
77/78	0.0947	3.174	0.91888	0.9135	0.880403097
78/79	0.13864	1.5153	0.58049	0.44704	0.26364955

Altman's Z-score is a financial metric that predicts a company's likelihood of bankruptcy. It combines several financial ratios to assess a company's financial health and solvency. The following is an interpretation of Altman's Z-score statistics for each year. The range of minimum and maximum values indicates how the Z-scores change over time. The Z-scores ranged from 0.08835 to 9.13367, indicating significant differences in the companies' financial health and bankruptcy risk. Across the years, the average Z-score ranged from 0.58049 to 2.07347. A higher average Z-score indicates a lower risk of bankruptcy because it indicates a better financial position. The standard deviation values in the Z-scores range from 0.44704 to 2.64477, indicating the degree of variability or dispersion. Higher standard deviations indicate greater fluctuations in financial health and bankruptcy risk. Years 71/72, 72/73, and 2077/78 have relatively lower mean Z-scores with moderate standard deviations (0.82735, 0.99108, and 0.91888, respectively), indicating a higher bankruptcy risk and potentially weaker financial positions.
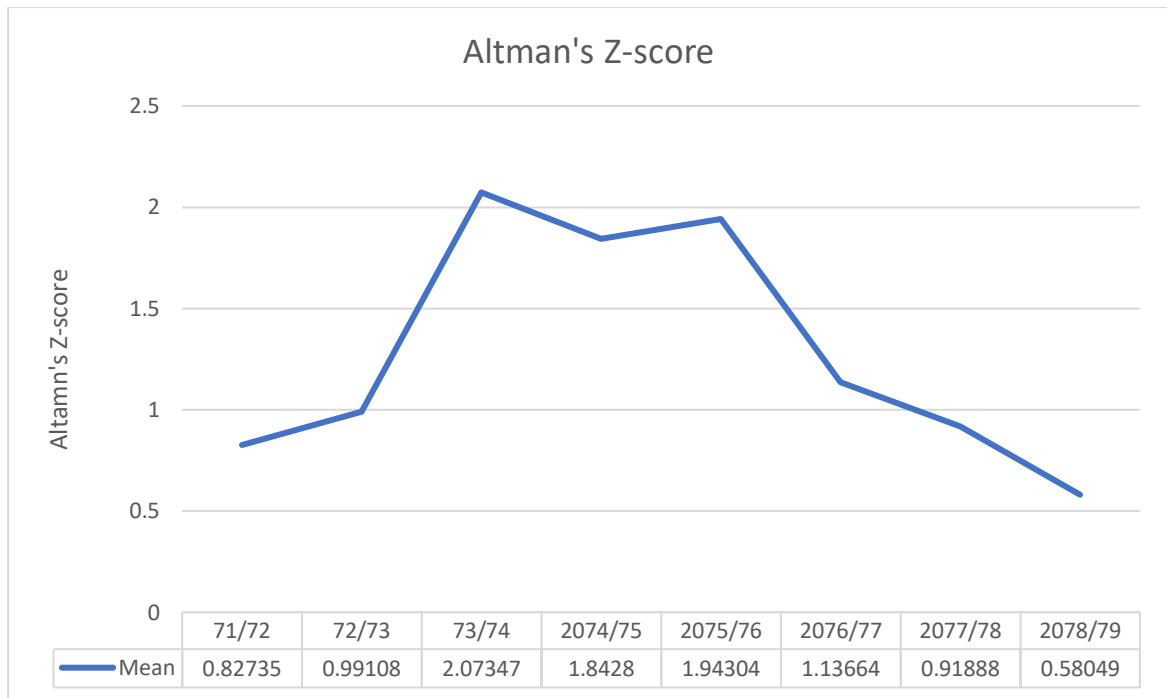
Figure 8: Altman's Z-score

The years 73/74 and 2075/76 have the highest mean Z-scores (2.07347 and 1.94304, respectively), as well as higher standard deviations, indicating a lower bankruptcy risk and relatively healthier financial positions. However, there is still some variation in the Z-scores. The years 2076/77 and 2078/79 have relatively low mean Z-scores (1.13664 and 0.58049), indicating a higher bankruptcy risk and potentially weaker financial positions.Overall, Altman's Z-score statistics provide insight into each year's companies' bankruptcy risk and financial health. Lower Z-scores indicate a higher likelihood of financial distress, while higher Z-scores indicate a lower risk of bankruptcy. To assess the financial stability and risk profile of the companies, it is critical to consider the trends and fluctuations in the Z-scores over time.

4.2. Descriptive statistics

This section presents and analyzes descriptive statistics of the dependent and independent variables that were studied for each of the eight sample banks and financial organizations. The sample banks' dependent and independent variable mean, standard deviation, minimum, and maximum values are shown in table 4.1.

Table 8: *Descriptive Statistics of Variables*

Factors	Minimum	Maximum	Mean	Std. Deviation	CV

Liquidity Ratio	0.0233	3.3050	0.3901	0.6288	1.61
Reserve Ratio	-0.9848	0.0549	0.0486	0.2019	-4.1543
Return on Assets	-0.0010	0.3112	0.0548	0.0546	0.99635
Solvency Ratio	0.0000	4.4352	0.3597	0.8846	2.45927
Leverage Ratio	0.1855	1.0170	0.7635	0.2193	0.28723
Capital Adequacy Ratio	0.0681	1.1100	0.2461	0.2295	0.93255
Altman's Z-Score	0.0884	4.9419	0.7559	0.9371	1.23971

Table 8 displays the various financial factors' minimum, maximum, mean, and standard deviation (SD) for each of the seven banks and financial institutions that are the subject of this investigation. The minimum and maximum values of the liquidity ratio are 0.0233 and 3.3050, respectively. With a standard deviation of 0.6288, the seven banks' average liquidity ratio is 0.3901. This suggests that the banks' levels of liquidity fluctuate, with some being closer to the minimum (lower banks) and others being closer to the maximum (higher banks). The reserve ratio might be as low as -0.9848 or as high as 0.0549. With a standard deviation of 0.2019, the mean reserve ratio for the seven banks is -0.0486, on average. Positive reserve ratios signify appropriate reserves, whereas negative ratios imply that some banks may not have enough reserves. The standard deviation shows how different the banks' reserve ratios are from one another. The ROA has a range of -0.0010 at the lowest and 0.3112 at the highest. With a standard deviation of 0.0546, the average return on assets (ROA) for the seven banks is 0.0548. Profitability is indicated by positive ROA numbers, whilst losses are suggested by negative ones. The standard deviation indicates that the banks' ROA varies from one another.

There is a minimum of 0.0000 and a maximum of 4.4352 in the solvency ratio range. With a standard deviation of 0.8846, the average solvency ratio for the seven banks is 0.3597. Better financial stability and the capacity to fulfill long-term obligations are indicated by a higher solvency ratio. The standard deviation points to variations in the banks' solvency ratios. The leverage ratio has a minimum of 0.1855 and a maximum of 1.0170. The seven banks have a mean leverage ratio of 0.7635, with a standard deviation of 0.2193. The percentage of debt in a bank's capital structure is measured by the leverage ratio. Increased financial risk is indicated by a higher leverage ratio. The standard deviation indicates that the banks' leverage ratios differ from one another.

There is a minimum of 0.0681 and a maximum of 1.1100 in the CAR. With a standard deviation of 0.2295, the average CAR for the seven banks is 0.2461. The CAR calculates

a bank's capital adequacy based on its risk-weighted assets. Better capital adequacy and financial soundness are indicated by higher CAR values. The standard deviation indicates that the banks' CARs vary from one another. There is a minimum of 0.0884 and a maximum of 4.9419 for the Altman's Z-Score. The Z-Score average for the seven banks is 0.7559, with a 0.9371 standard deviation. Higher values on Altman's Z-Score indicate a lower risk of financial distress. It is a measure of the likelihood of bankruptcy or financial distress. The standard deviation indicates that Altman's Z-Scores vary between the commercial banks.

Altman's Z-Score is a predictive model that assesses a company's likelihood of financial distress or bankruptcy. The theory suggests that the Z-Score values correspond to a range of financial distress. Organizations with Z-Scores greater than 2.99 are thought to be safe, indicating a low risk of financial distress. These businesses are generally regarded as financially sound and stable. Organizations with Z-Scores ranging from 1.81 to 2.99 are in the gray zone, indicating a moderate risk of financial distress. They are not classified as safe, but they are also not in imminent danger of bankruptcy. To accurately assess their financial health, these businesses must monitor and analyze other factors.

Organizations with Z-Scores lower than 1.81 are in distress, indicating a high risk of financial distress or bankruptcy. These businesses are generally in financial distress and are more likely to face difficulties in meeting their financial obligations. According to the Altman Z-Score range provided in the table (0.0884 to 4.9419), the studied banks and financial institutions fall into different categories. The minimum Z-Score of 0.0884 indicates that some banks may be at greater risk of financial distress. With a maximum Z-Score of 4.9419, some banks are in the safe zone, with a low likelihood of financial distress. The average Z-Score of 0.7559 falls between the distress zone and the gray zone, indicating an intermediate level of risk for the banks studied.

4.3 Correlation matrix
In correlation analysis, the r value is used to determine relative strength and weakness. If r is less than or equal to 0.35, the correlation is weak. If the r value is between 0.35 and 0.68, the relationship is moderate. Finally, r values greater than or equal to 0.68 indicate significant correlations.

Table 9: *Correlation Matrix*

Factors	1	2	3	4	5	6	7
Liquidity	1	-	-	-	-	-	-
Reserve	-.929**	1	-	-	-	-	-
ROA	.082	-.057	1	-	-	-	-
Solvency	.399**	-.471**	.320**	1	-	-	-
Leverage	-.413**	.501**	-.207	-.856**	1	-	-
CAR	.584**	-.593**	-.179	.367**	-.512**	1	-
Altman's Z-Score	.542**	-.581**	.383**	.981**	-.843**	.413**	1

Table 9 shows a correlation matrix that examines the relationships between Altman's Z-Score, the dependent variable, and six other financial factors labeled 1 through 6. For each pair of variables, the matrix provides correlation coefficients ranging from -1 to 1, representing the strength and direction of the relationships between the variables.

First, at 0.542, Altman's Z-Score has a positive and statistically significant correlation with Liquidity. This implies that as a company's liquidity increases, its Altman's Z-Score rises, indicating a stronger financial position. Second, Altman's Z-Score, at -0.581, has a negative and statistically significant correlation with Reserve. This means that as a company's reserves grow, its Altman's Z-Score tends to fall, possibly indicating lower financial stability.

Third, Altman's Z-Score, at 0.383, has a positive and significant correlation with ROA. This means that as the company's Return on Assets (ROA) improves, so does its Altman's Z-Score, indicating improved financial health. Fourth, Altman's Z-Score, at 0.981, shows a very strong positive correlation with Solvency. As a company's solvency improves, its Altman's Z-Score is likely to rise significantly, indicating greater financial strength and stability.

Fifth, at -0.843, Altman's Z-Score has a negative and significant correlation with Leverage. This means that as a company's leverage increases, its Altman's Z-Score tends to decrease, potentially signaling increased financial risk. Finally, Altman's Z-Score, at

0.413, has a positive and statistically significant correlation with CAR. This implies that as the company's Capital Adequacy Ratio (CAR) improves, so does its Altman's Z-Score, indicating a stronger financial position.

In summary, Altman's Z-Score is associated with Liquidity, ROA, Solvency, and CAR, while it is associated negatively with Reserve and Leverage. These findings shed light on the relationships between Altman's Z-Score and various financial factors in the context of the commercial banks studied.

4.4 Regression analysis

Regression analysis is used to determine the causal relationship between the variables. It is not always necessary to have a causal relationship between two highly linked variables. A regression analysis is required to determine a cause-and-effect relationship between or among variables. The researchers used SPSS to run a regression analysis to discover this.

Table 10: *Regression Model*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.998ᵃ	.996	.996	13.0774160

a. Predictors: (Constant), CAR, ROA, Solvency, Liquidity, Leverage, Reserve

The results of a regression model with Altman's Z-Score as the dependent variable are shown in Table 10. The model has a very high coefficient of determination (R Square) of 0.996, indicating that the model's independent variables can explain 99.6% of the variation in Altman's Z-Score. The adjusted R Square, which accounts for the number of predictors, remains nearly constant at 0.996, indicating that the model is well-fitted. The estimate's standard error is 13.0774160, indicating that the model's predictions are relatively accurate.

A constant term is included in the model, as well as CAR (Capital Adequacy Ratio), ROA (Return on Assets), Solvency, Liquidity, Leverage, and Reserve. The model's high R Square value indicates that these predictors have a significant influence on Altman's Z-Score. As a result, this regression model provides a solid foundation for predicting and comprehending the relationship between Altman's Z-Score and the chosen financial factors.

Table 11: *ANOVA Test*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2472210.000	6	412035.000	2409.296	.000[b]
	Residual	9748.072	57	171.019		
	Total	2481958.072	63			

a. Dependent Variable: Altman's Z-Score

b. Predictors: (Constant), CAR, ROA, Solvency, Liquidity, Leverage, Reserve

Table 11 shows the results of an ANOVA test for a regression model with Altman's Z-Score as the dependent variable. The ANOVA test is used to evaluate the regression model's overall effectiveness in explaining variation in the dependent variable. The sum of squares, degrees of freedom (df), mean square, F-statistic, and significance level (Sig.) associated with the regression portion of the model are reported in this section of the table. The regression model is highly significant, as indicated by the low p-value (Sig.) of.000.

Finally, the ANOVA test results show that the regression model, which includes predictors such as CAR, ROA, Solvency, Liquidity, Leverage, and Reserve, explains a large portion of the variation in Altman's Z-Score. The regression section's very low p-value (Sig.) indicates that the model is a good fit, and the independent variables collectively contribute significantly to the explanation of Altman's Z-Score.

Table 12: *Regression Analysis*

Model		Standardized Coefficients	t	Sig.
		Beta		
1	(Constant)		-.123	.902
	Liquidity	.247	10.548	.000

Reserve	.071	2.935	.005
ROA	.082	8.625	.000
Solvency	.894	52.606	.000
Leverage	.006	.345	.732
CAR	.000	-.020	.984

Table 12 provides the results of a multiple regression analysis with Altman's Z-Score as the dependent variable. This table displays the standardized coefficients, t-values, and significance levels (Sig.) for each of the independent variables, also known as predictors, included in the model. The standardized coefficients, represented as Beta values, indicate the relative importance of each predictor in explaining the variation in Altman's Z-Score. In this analysis:

Liquidity has a Beta value of 0.247, a t-value of 10.548, and a highly significant p-value (Sig.) of 0.000. This suggests that Liquidity has a strong positive effect on Altman's Z-Score, and this relationship is statistically significant. Reserve has a Beta value of 0.071, a t-value of 2.935, and a significant p-value (Sig.) of 0.005. This indicates that Reserve also has a positive influence on Altman's Z-Score, and this relationship is statistically significant, albeit to a lesser extent.

ROA has a Beta value of 0.082, a t-value of 8.625, and a highly significant p-value (Sig.) of 0.000. This shows that an increase in Return on Assets (ROA) is associated with a positive impact on Altman's Z-Score, and this relationship is statistically significant. Solvency has the highest Beta value of 0.894, a t-value of 52.606, and a highly significant p-value (Sig.) of 0.000. This indicates that Solvency has a remarkably strong positive effect on Altman's Z-Score, and this relationship is highly statistically significant.

Leverage has a Beta value of 0.006, a t-value of 0.345, and a non-significant p-value (Sig.) of 0.732. This suggests that Leverage does not have a substantial impact on Altman's Z-Score, and this relationship is not statistically significant. CAR (Capital Adequacy Ratio) has a Beta value of 0.000, a t-value of -0.020, and a non-significant p-value (Sig.) of 0.984. This indicates that CAR does not significantly influence Altman's Z-Score.

In summary, the regression analysis highlights that Liquidity, Reserve, ROA, and particularly Solvency are important predictors that positively impact Altman's Z-Score. On the other hand, Leverage and CAR do not appear to be significant contributors to the prediction of Altman's Z-Score. These findings provide valuable insights into the relationships between these financial factors and Altman's Z-Score, helping in assessing a company's financial stability and performance.

Hypotheses Testing

The researcher was able to understand the relative impact of each predictor on Altman's Z-Score thanks to the standardized Beta values. The hypothesis test for the study is as follows"

H1: Liquidity will have a significant impact on Altman's Z-score.

The Beta value for Liquidity is 0.247, and the associated t-value is 10.548, with a highly significant p-value (Sig.) of 0.000. This means that Liquidity has a significant and positive impact on Altman's Z-Score, confirming H1.

H2: Reserve will have a significant impact on Altman's Z-score.

The Beta value for Reserve is 0.071, the t-value is 2.935, and the p-value (Sig.) is 0.005, indicating that Reserve has a significant and positive impact on Altman's Z-Score, supporting H2.

H3: Return on Assets will have a significant impact on Altman's Z-score.

The Beta value for ROA is 0.082, the t-value is 8.625, and the p-value (Sig.) is 0.000. This implies that Return on Assets has a significant and positive impact on Altman's Z-Score, confirming H3.

H4: Solvency will have a significant impact on Altman's Z-score.

The Beta value for Solvency is 0.894, and the t-value is a very high 52.606, with a highly significant p-value (Sig.) of 0.000. This indicates that Solvency has an extremely significant and positive impact on Altman's Z-Score, supporting H4.

H5: Leverage will have a significant impact on Altman's Z-score.

The Beta value for Leverage is 0.006, the t-value is 0.345, and the p-value (Sig.) is 0.732. This implies that Leverage does not have a significant impact on Altman's Z-Score, rejecting H5.

H6: Capital Adequacy Ratio will have a significant impact on Altman's Z-score.

The Beta value for CAR is 0.000, and the t-value is -0.020, with a non-significant p-value (Sig.) of 0.984. This indicates that Capital Adequacy Ratio (CAR) does not have a significant impact on Altman's Z-Score, rejecting H6.

In summary, the results of the regression analysis support the hypotheses that Liquidity, Reserve, Return on Assets, and Solvency have significant and positive impacts on Altman's Z-Score, while Leverage and Capital Adequacy Ratio do not have significant impacts. These findings provide valuable insights into which financial factors are most influential in determining a company's Altman's Z-Score, which is a measure of financial stability and performance.

4.5 Discussion

The major findings of the study can be summarized as follows:

The study conducted a correlation analysis to examine the relationships between Altman's Z-Score, the dependent variable, and six key financial factors. The analysis revealed that Altman's Z-Score showed significant positive correlations with Liquidity, Return on Assets (ROA), Solvency, and Capital Adequacy Ratio (CAR), while it displayed significant negative correlations with Reserve and Leverage. These findings indicate that these financial factors play a crucial role in influencing Altman's Z-Score, providing insights into the commercial banks' financial stability and performance.

A multiple regression analysis was performed to determine the causal relationships between the financial factors and Altman's Z-Score. The results indicated that Liquidity, Reserve, ROA, and particularly Solvency had significant and positive impacts on Altman's Z-Score. However, Leverage and Capital Adequacy Ratio (CAR) did not have a significant impact on Altman's Z-Score. These findings underscore the importance of specific financial factors in predicting a company's financial stability and performance, offering valuable insights for stakeholders and decision-makers.

The study tested a set of hypotheses to confirm the relationships between the financial factors and Altman's Z-Score. The results provided strong support for hypotheses H1, H2,

H3, and H4, which postulated significant impacts of Liquidity, Reserve, ROA, and Solvency on Altman's Z-Score, respectively. However, the data did not support hypotheses H5 and H6, which proposed significant impacts of Leverage and Capital Adequacy Ratio on Altman's Z-Score. These findings emphasize the differential roles of various financial factors in determining a company's financial stability and performance, contributing to a more comprehensive understanding of these relationships.

In conclusion, the study's major findings shed light on the critical financial factors that influence Altman's Z-Score, providing valuable insights for stakeholders, investors, and decision-makers in the context of commercial banks in Nepal. The results contribute to a better understanding of the financial health and stability of these institutions, which can aid in making informed financial decisions and managing risks effectively.

The empirical review of existing literature provides valuable insights into the factors influencing financial distress in various sectors, providing a foundation for contextualizing, and discussing the current study's major findings. Kosikoh (2014) investigated liquidity management and financial leverage in Kenyan Savings and Credit Cooperative Organizations, revealing that liquidity has a significant impact on financial distress. This is consistent with the current study's finding that liquidity improves Altman's Z-Score, indicating improved financial stability. Shahwan (2015) investigated corporate governance practices in Egyptian-listed companies and discovered low governance quality with an insignificant relationship to financial distress, a finding consistent with the current study's non-significant impact of leverage on Altman's Z-Score.

Samanhyia et al. (2016) delved into predicting financial distress in Ghana listed banks, emphasizing the adverse effect of poor corporate governance on distress. This aligns with the current study's focus on governance factors, demonstrating the significant positive impact of solvency on Altman's Z-Score. The relevance of governance is further supported by Wibowo et al. (2019), indicating a relation between overvaluation and distress risk, corresponding to the present study's findings regarding the non-significant impact of capital adequacy ratio on Altman's Z-Score.

Furthermore, Ong'era et al. (2017) established leverage as a significant predictor of financial distress in listed companies at the Nairobi Securities Exchange, which resonates with the current study's findings highlighting leverage's negative correlation with

Altman's Z-Score. The importance of corporate governance in financial distress is reiterated by Kurniasih (2021), who found that institutional, managerial, and independent commissioner factors significantly affected financial distress. This aligns with the current study's emphasis on governance factors such as solvency as significant predictors of Altman's Z-Score.

In conclusion, the empirical review provides a comprehensive backdrop for interpreting the major findings of the current study. The literature underscores the multifaceted nature of financial distress, with various factors such as liquidity, governance, leverage, and capital structure playing pivotal roles. The present study's alignment with, and extension of, these existing findings contributes to the growing body of knowledge surrounding financial distress determinants in the banking sector.

CHAPTER V

CONCLUSION AND IMPLICATIONS

The conclusion and implications of the thesis are addressed in the final chapter. This chapter summarizes the study's main findings and insights. It provides a summary of the research process, emphasizing the significance of the findings in relation to the study's objectives. The chapter also delves into the practical implications of the findings and their potential impact on the relevant field. The conclusion serves as the thesis's capstone, providing closure and paving the way for future research and applications in the field.

5.1 Summary

In summary, the study delved into an extensive analysis of the financial factors influencing Altman's Z-Score in commercial banks, employing correlation analysis, regression modeling, and hypothesis testing. The correlation matrix revealed significant relationships between Altman's Z-Score and key factors, emphasizing the substantial impact of liquidity, return on assets (ROA), solvency, and capital adequacy ratio (CAR). Conversely, the study identified negative correlations with reserve and leverage, signifying potential risks associated with these financial indicators.

The regression analysis further validated these findings, interpreting the influences of each financial factor on Altman's Z-Score. Liquidity, reserve, ROA, and solvency emerged as significant predictors positively affecting Altman's Z-Score, underscoring their pivotal roles in enhancing financial stability. However, leverage and CAR did not demonstrate significant impacts, suggesting their limited influence in predicting Altman's Z-Score in the context of commercial banks.

The hypotheses testing process provided additional confirmation of these relationships. Hypotheses pertaining to liquidity, reserve, ROA, and solvency were substantiated by the statistical significance of their corresponding Beta values, emphasizing the robustness of these factors in determining Altman's Z-Score. Conversely, hypotheses related to leverage and CAR were not supported, indicating their lesser relevance in predicting the financial stability measure.

These major findings contribute significantly to the understanding of the intricate dynamics between financial indicators and Altman's Z-Score, offering valuable insights for stakeholders in the banking sector. The results not only enhance the theoretical

framework surrounding financial stability assessment but also provide practical implications for decision-makers, investors, and regulators.

5.2 Conclusion

In conclusion, this study successfully achieved its objectives aimed at enhancing the understanding of factors influencing financial distress in the banking sector, specifically within Nepalese Financial Institutions. Through an empirical investigation and a comprehensive literature review, the study revealed that liquidity management, corporate governance practices, leverage, and capital structure are pivotal determinants affecting a bank's financial health. The findings align with existing research, emphasizing the significant role of effective liquidity management in promoting financial stability, as highlighted by Kosikoh (2014).

The Altman Z-Score, leverage, and capital adequacy ratio were used in the study to extensively analyze the financial health of Nepalese financial institutions. The findings shed light on the current state of financial turmoil and provide a thorough picture of the sector's soundness.The empirical study investigated the multidimensional interaction between several financial distress indicators, such as liquidity management, corporate governance procedures, leverage, and capital structure, and their impact on the overall performance of Nepalese financial institutions. The investigation provided vital insights into how these components are interrelated.The research investigated the impact of specific accounting characteristics on predicting financial distress in Nepalese financial institutions. Variables such as the liquidity ratio, reserve ratio, solvency ratio, and return on assets were examined in depth, offering a thorough grasp of their function in projecting financial disaster.

The non-significant impact of leverage on Altman's Z-Score, consistent with Shahwan's (2015) findings on corporate governance practices, emphasizes the relationship between governance quality and financial distress. The exploration of governance factors, particularly solvency, aligns with broader literature, as indicated by studies such as Samanhyia et al. (2016) and Kurniasih (2021), point out the importance of corporate governance in predicting financial distress.

In summary, this study increases **the** understanding of the factors of financial distress within Nepalese financial institutions, providing insight into the complex interplay of liquidity, governance, leverage, and capital structure. This study, which is based on

existing literature, serves as a platform for future research endeavors and provides practical implications for policymakers and banking institutions seeking to increase their financial stability in dynamic economic settings.

5.3 Implications

The study's findings have significant implications for the banking sector, shedding light on key determinants of financial distress. The identified factors, which include liquidity management, corporate governance practices, and leverage, provide valuable insights for financial institutions looking to strengthen their stability and resilience in the face of potential economic challenges. Understanding these determinants can help guide strategic decision-making processes, allowing banks to manage risks more effectively and improve their overall financial health. The implications for the study are as follows:

1. 2. The study emphasizes the importance of prudent leverage management. To avoid potential distress, banks should carefully evaluate their leverage ratios and ensure they align with sustainable financial practices.

2. The findings emphasize the significance of capital structure optimization. Financial institutions should strive for a balance that promotes growth while protecting against financial risks.

3. Because non-performing loans have a negative impact on profitability, banks should maintain vigilant monitoring systems to detect and address potential issues as soon as possible.

4. Regulatory bodies can use these findings to fine-tune and tailor policies to address the study's identified determinants of financial distress.

5. The study can be beneficial to researcher and scholars for further study. Different financial sectors can be considered to gain insight on financial distress in the Nepalese economy.

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Appendix

Year	Bank	Liquidity	Reserve	ROA	Solvency	Leverage	CAR	Altman's Z-Score
2071	Kumari Bank	8.9760	2.3366	3.4980	14.9304	90.2679	10.8400	29.7410
2072	Kumari Bank	10.4880	2.6319	5.5770	11.7251	86.5453	11.6900	30.4220
2073	Kumari Bank	12.3960	2.5854	4.2570	12.5398	87.2579	14.5000	31.7782
2074	Kumari Bank	8.2200	3.0378	4.1580	13.3601	87.2586	13.3600	28.7759
2075	Kumari Bank	5.5080	2.7851	3.8610	12.2523	88.8534	11.7500	24.4064
2076	Kumari Bank	4.5360	2.7344	2.5080	10.8561	88.1702	15.3500	20.6345
2077	Kumari Bank	4.4640	2.7131	3.4320	18.0769	90.0458	13.7100	28.6859
2078	Kumari Bank	4.5360	2.8580	4.0260	8.8217	90.0984	12.6300	20.2417
2071	RBB	17.3760	0.5262	10.6260	0.0000	90.4940	10.1600	28.5282
2072	RBB	16.9080	0.4307	4.6860	0.0000	90.4940	10.4600	22.0247
2073	RBB	15.2000	0.5586	5.2800	0.0000	90.4940	10.3900	121.0386
2074	RBB	6.3480	-2.7927	5.2800	0.0000	90.4940	11.4600	8.8353
2075	RBB	4.1280	0.8623	7.3590	0.0000	90.4661	13.3900	12.3493
2076	RBB	8.7840	0.3997	5.4120	0.0000	91.3659	12.6400	14.5957
2077	RBB	4.2480	1.5594	3.6630	0.0000	90.7266	13.4600	9.4704
2078	RBB	8.7840	0.7897	4.2900	0.0000	90.0764	13.2900	13.8637
2071	Prabhu Bank	18.8280	4.3759	7.2270	5.4341	89.1754	10.6100	35.8650
2072	Prabhu Bank	14.5560	3.3076	5.4120	7.4611	89.4131	12.2900	30.7367
2073	Prabhu Bank	14.5560	2.8464	5.8080	7.2885	89.8583	11.1800	30.4989
2074	Prabhu Bank	8.1960	0.9335	2.8380	8.2133	89.1663	11.8600	20.1808
2075	Prabhu Bank	5.2680	1.5442	4.2570	7.4270	89.6142	11.1600	18.4962
2076	Prabhu Bank	13.4400	1.0129	2.3430	6.9884	90.5979	11.1800	23.7843
2077	Prabhu Bank	5.1120	1.0661	2.6400	5.4822	101.6969	13.1000	14.3002
2078	Prabhu Bank	4.4040	0.6213	2.7060	12.1099	82.8903	12.8600	19.8412
2071	NBL	13.8600	0.6631	1.8150	12.5324	88.4229	7.5000	28.8705

Year	Bank							
2072	NBL	20.9520	0.5941	9.2070	10.9329	86.4036	10.2000	41.6860
2073	NBL	22.5720	0.5935	9.1740	12.9444	83.8358	14.4700	45.2840
2074	NBL	29.5800	-0.4584	7.9629	11.0055	82.7883	11.2700	48.0900
2075	NBL	34.4760	2.3639	4.9830	10.4296	82.9275	16.8000	52.2525
2076	NBL	35.4480	2.2725	4.0260	10.5874	84.2904	17.0100	52.3339
2077	NBL	32.1720	2.3469	4.3890	10.0864	85.0816	16.8000	48.9944
2078	NBL	27.5760	1.8422	3.6960	9.8913	86.3642	15.0500	43.0055
2071	ADBL	34.4880	1.6946	10.2960	5.6451	76.3264	17.1600	52.1237
2072	ADBL	27.9960	1.4730	7.6560	4.9594	78.4427	17.1800	42.0844
2073	ADBL	37.4160	1.2269	7.0950	9.8412	78.6781	20.4100	55.5791
2074	ADBL	34.9800	2.6865	8.3820	10.8262	80.4066	19.6600	56.8747
2075	ADBL	32.6400	3.2891	9.1080	10.1519	81.2668	19.5400	55.1891
2076	ADBL	40.7760	1.7752	6.2040	8.7804	84.1232	19.3300	57.5356
2077	ADBL	43.4520	2.3001	5.2470	7.9776	85.8367	16.9400	58.9767
2078	ADBL	31.1520	2.1521	2.9700	8.5884	92.8983	16.3000	44.8625
2071	HBL	36.3840	0.0349	4.4220	1.4248	88.8126	11.1400	42.2657
2072	HBL	34.4880	0.1944	6.4020	1.9679	87.4556	10.8400	43.0523
2073	HBL	31.9680	0.1946	6.6990	2.5487	86.5980	12.1500	41.4103
2074	HBL	27.6600	5.3498	5.5110	10.1344	88.0572	12.4600	48.6552
2075	HBL	31.5000	5.4912	7.2930	9.3052	88.1705	12.6000	53.5894
2076	HBL	37.6680	5.0605	5.9070	8.6752	88.8852	14.8900	57.3107
2077	HBL	31.8120	5.0354	5.5440	8.6474	88.8771	13.8900	51.0388
2078	HBL	28.1760	4.1181	3.5970	8.5250	89.9989	11.7500	44.4161
2071	Corporate Development Bank	0.8400	1.4510	30.3930	343.7626	34.6578	-10.8000	376.4466
2072	Corporate Development Bank	1.6800	1.6035	3.1350	301.4365	28.5516	-13.4800	307.8550
2073	Corporate Development	2.6400	2.1250	22.2090	872.8931	20.1301	19.8700	899.8671

	Bank							
2074	Corporate Development Bank	48.6720	1.8954	24.0900	702.6235	18.5472	38.3200	777.2809
2075	Corporate Development Bank	5.2440	-20.1059	0.1980	351.3762	31.9405	47.1200	336.7122
2076	Corporate Development Bank	8.2440	-7.1887	0.4290	262.6321	34.1936	40.0900	264.1164
2077	Corporate Development Bank	4.9440	5.1361	-0.0990	187.2102	43.5268	83.3600	197.1913
2078	Corporate Development Bank	2.3280	4.4836	0.0000	127.0723	53.5474	56.6800	133.8839
2071	Nepal Finance Limited	3.2280	6.4249	-45.1440	77.0505	115.1960	-28.5100	41.5594
2072	Nepal Finance Limited	0.7800	9.1933	93.6870	161.9157	98.4455	-25.5500	265.5760
2073	Nepal Finance Limited	1.4160	9.1797	71.6100	282.0524	71.7434	-19.7300	364.2581
2074	Nepal Finance Limited	187.8000	-52.2173	19.2060	263.4348	33.2834	6.8100	418.2235
2075	Nepal Finance Limited	330.5040	-98.4823	9.9000	671.4456	28.4981	111.0000	913.3673
2076	Nepal Finance Limited	152.2680	-53.0471	31.1190	271.2203	50.9730	35.7400	401.5602
2077	Nepal Finance Limited	141.9480	-24.2601	11.5170	188.1947	52.7703	64.3500	317.3996
2078	Nepal Finance Limited	84.5040	-16.4739	3.2340	80.2654	65.4032	44.6900	151.5295