UNIVERSITY OF CAPE COAST

FINANCIAL DISTRESS AND FINANCIAL PERFORMANCE OF BANKS IN GHANA

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BY

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ABSTRACT

While the financial performance of commercial banks in Ghana remains critical to economic stability, the impact of financial distress on key profitability indicators – return on assets (ROA) and return on equity (ROE) – has been underexplored. This study investigates the relationship between financial distress and financial performance of commercial banks in Ghana, controlling for firm size and age. Using a quantitative approach within an explanatory research design, panel data from 22 commercial banks (2011–2021) were analysed. Financial distress was measured using the bank-specific Z-score, with fixed and random effect models estimated, and system generalised method of moments (SGMM) for robustness. Findings revealed severe financial distress levels, significantly reducing ROA and ROE. The study accentuated the need for robust risk management and capital adequacy to mitigate distress, contributing to policy frameworks for banking stability in Ghana.

KEYWORDS

Banks in Ghana

Financial distress

Financial performance

Return on assets

Return on equity

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CHAPTER ONE

INTRODUCTION

Given the critical role of commercial banks' financial performance in their continued operation and viability, it is essential to examine the factors that may influence it. This study focuses on how financial distress affects the return on assets (ROA) and return on equity (ROE) of commercial banks in Ghana. To achieve this objective, a quantitative approach is utilised within the framework of an explanatory research design. The findings indicate a significant relationship between financial distress and both ROA and ROE. This chapter provides background information on the study, outlines the statement of the problem, research objectives, and research hypotheses, among other key elements.

Background to the Study

Financial performance is a crucial indicator of an organisation's health and viability, reflecting its ability to generate revenue, manage costs, and ultimately create value for its stakeholders (Ernawati, Handojo & Murhadi, 2018; Laurens, & Mulyani, 2022). According to Ernawati et al. (2018), financial performance encompasses various metrics such as profitability, liquidity, solvency, and efficiency. In Sporta's (2018) view, these metrics provide insights into the effectiveness of a company's operations and its capacity to weather economic uncertainties. Vo (2023) explained that understanding financial performance involves analysing income statements, balance sheets, and cash flow statements to assess trends, identify strengths, pinpoint weaknesses, and make informed strategic decisions.

Usually, profitability indicators of return on assets (ROA) and return on equity (ROE) are used as measures of financial performance of firms (Kopecká, 2018; Oppong, Atchulo, Dargaud Fofack, & Afonope, 2024; Widarwati & Sartika, 2019). This is due to the fact that they provide insights into the efficiency of asset utilisation and the return generated on shareholders' investment, respectively (Kopecká, 2018), offering a comprehensive evaluation of a company's profitability and value creation (Oppong et al., 2024). Whilst ROA is the ratio of a firm's net profit or income to its average total assets (Hidayat, 2021; Saputra, 2022), ROE is the ratio of a firm's net profit to its shareholders' equity (Choiriyah, Fatimah, Agustina & Ulfa, 2020).

According to the literature, financial performance, and for that matter ROA and ROE, may be influenced by financial distress (Ivuvu, 2022; Gathoni, 2021; Habib, Costa, Huang, Bhuiyan & Sun, 2020), which Atinyo (2022) described as a situation where a company experiences significant difficulty in meeting its financial obligations, such as debt repayments, operational expenses, or interest payments, due to financial setbacks. Financial distress impacts ROA and ROE through several channels. First, high non-performing loans (NPLs) erode asset quality, reducing ROA. Second, liquidity constraints from distress increase borrowing costs, limiting equity returns (ROE).

Third, distress signals operational inefficiencies, deterring investors and depositors, further depressing profitability. Grounded in the gambler's ruin theory, repeated financial losses increase bankruptcy risk, impairing performance (Gathoni, 2021). Financial distress theory complements this, suggesting that

distress amplifies costs and reduces stakeholder confidence, adversely affecting ROA and ROE (Habib et al., 2020). The directionality – distress influencing performance rather than vice versa – is supported by distress as a precursor to operational and financial decline, unlike performance, which may not inherently cause distress (Gathoni, 2021; Habib et al., 2020).

Considering financial performance, particularly ROA and ROE, in the light of financial distress and factors of size and age is crucial for several reasons. Saputra (2022) argued that ROA and ROE provide valuable insights into a company's profitability and efficiency in generating returns for its shareholders. Thus, serving as indicators of how effectively a company utilises its assets and equity to generate profits (Hidayat, 2022), which Ardhana, Karyatun and Digdowiseiso (2023) opined as being fundamental to evaluating a firm's operational effectiveness and long-term sustainability.

Secondly, ROA and ROE help attract investment opportunities, as high ROA and ROE ratios are generally indicative of strong financial performance and management's ability to create value for shareholders (Ananda, Gulo, Purba, & Ginting, 2023). Thirdly, Budiantara, Supiyadi, Sumawidjaja and Sudaryo (2024) express that ROA and ROE enable companies to identify trends, evaluate the impact of strategic decisions, as well as benchmark their performance against industry peers, encouraging continuous improvement and strategic planning. Consequently, drawing on the gambler's ruin theory (Coolidge, 1909; Derbyshire, & Garnsey, 2015; Wilcox, 1976) and the finance distress theory (Cybinski, 2001; Sewpersadh, 2022), the central argument of this study is that focusing on levels of

financial distress may help firms make informed decisions, allocate resources efficiently, driving sustainable growth and profitability.

Shaukat and Affandi (2015) concluded that lessened financial distress levels, measured using the Altman's Z score, translate into improved financial performance. Sporta (2018) also found that financial distress factors significantly influence liquidity, leverage, operational efficiency, asset quality and capital adequacy. Ernawati, Handojo and Murhadi (2018) reported a significant association between financial performance, corporate governance, and financial distress. Using the Altman z-score as a measure of financial distress, Mahmood, Rizwan and Rashid (2018) revealed that as the Altman z-score increases, the chances of financial distress reduce, favourably influencing the performance of Pakistani firms. Nonetheless, Laurens and Mulyani (2022) found no relationship between financial distress and stock returns, even after controlling for and moderating the effect of firm size.

Across the globe, business sectors, such as the financial sector which is dominated by banks (IMF, 2019), have been shown to favourably drive their financial performance indicators through appropriate management of financial distress pointers (Widarwati, & Sartika, 2019). This is in line with Vo (2023) and Yensu, Yusif, Tetteh, Asumadu and Atuilik's (2021) assertion that pre-empting instability and potential bankruptcy within commercial banks contributes to the overall financial health and performance of the banks within. For instance, Campbell (2011) stated that, having achieved financial stability and reduced distress, banks in the United States have experienced encouraging ROA and ROE,

contributing enormously to the country's GDP in the long run. Specifically, the finance sector, dominated by banks, contributed about 20.2% of United States' GDP in 2023 (Statistica, 2023).

In China, the banking sector was the third highest contributor to GDP, raking in 8% (Textor, 2024). According to the World Economic Outlook (2019), and Cowling (2024), the sector contributed US$41.4 billion and US$58.6 billion to South Africa's GDP in 2019 and 2023, respectively. As of 2022, the total assets of the banking sector in Kenya corresponded to 65.7% of the country's Gross Domestic Product (Cowling, 2023). Between 2017 and 2020, the Nigerian banking industry contributed an impressive N168.4 trillion (about US$118.6 billion) to the country's Gross Domestic Product, despite facing two challenging recessions (Ailemen, 2022).

In Ghana, the banking sector plays a pivotal role in economic development, contributing approximately 6.5% to GDP in 2023 (Sasu, 2024). It also added over 499.4 million U. S. dollars to Ghana's GDP as of the third quarter of 2021 (Sasu, 2023). However, bank profitability has faced challenges, with average ROA and ROE declining to 3.2% and 15.8%, respectively, between 2019 and 2023 (BoG, 2023). Strong bank performance supports Ghana's Sustainable Development Goals (SDGs), particularly SDG 1 (no poverty) and SDG 8 (decent work and economic growth), by facilitating credit access, job creation, and infrastructure financing. Conversely, financial distress – characterised by difficulties in meeting obligations like loan repayments or operational costs – threatens this contribution.

The Bank of Ghana (BoG) has implemented several policies and measures, including 'clean-up exercise' (Atinyo, 2022), to enhance the performance and stability of the banking sector. For instance, BoG (2021) employs risk-based supervision to monitor banks effectively, by focusing on identifying and addressing risks in a targeted manner. The BoG (2019) also introduced sustainable banking principles to promote responsible banking practices, covering areas such as human security, anti-money laundering, transparency, and environmental stewardship. According to Obuobi, Nketiah, Awuah and Amadi (2020), BoG further initiated a recapitalisation exercise, requiring banks to increase their minimum capital levels, to strengthen the financial position of banks and enhance their ability to absorb shocks. These, among others, were to promote the overall performance of banks in Ghana (Atinyo, 2022; Obuobi et al., 2020).

Statement of the Problem

Despite the banking sector's systemic importance, commercial banks listed on the Ghana Stock Exchange (GSE) have exhibited persistent performance challenges (Atinyo, 2022; BoG, 2021; Obuobi et al., 2019; Owusu, Baafi & Agyei, 2024). Between 2019 and 2023, GSE-listed banks reported average ROA and ROE of 3.1% and 14.9%, respectively, below regional benchmarks (e.g., Nigeria's 4.5% ROA) (BoG, 2023; CBN, 2023). These subdued metrics, coupled with a 20% NPL ratio in 2022, signal potential financial distress, threatening financial stability and economic growth (Atinyo, 2022). Managing distress levels could enhance performance by reducing loan loss provisions, improving liquidity, and restoring investor confidence, thereby boosting ROA and ROE.

Theoretically, uncontrolled levels of financial distress jeopardise financial performance (Habib et al., 2020; Sewpersadh, 2020). Repeated losses, financial setbacks, financial instability, and potential bankruptcy, among others, constitute the cardinal arguments in the gambler's ruin and the financial distress theories (Cybinski, 2001; Gathoni, 2021). Nonetheless, empirical evidence on the relationship between financial distress and financial performance remains unclear. Whilst some studies have reported that decreased levels of financial distress culminate in favourable financial performance (Mahmood et al., 2018; Shaukat, & Affandi, 2015; Sporta, 2018), others had concluded that financial distress could improve performance (Opler, & Titman, 1994; Wruck, 1990). Yet, Laurens and Mulyani (2022) found no relationship between financial distress and performance, using stock returns.

Moreover, recent studies have explored financial distress in non-banking sectors (Azizah & Lismawati, 2024; Vo, 2023), but bank-specific analyses remain scarce. Existing research often focuses on distress determinants (Sporta, 2018) rather than its impact on profitability metrics like ROA and ROE, leaving a gap in understanding bank-specific dynamics. Banks are unique due to their systemic role, stringent regulation, and exposure to credit risks, making generalised findings less applicable. This study, therefore, while building on prior related studies (Gathoni, 2021; Vo, 2023), and focusing on Ghanaian's banking sector – which has so far been given limited attention in the empirical literature as far as the links between financial distress, and ROA and ROE are concerned (Atinyo, 2022; Yensu et al.,

2021) – set out to assess the relationship between financial distress and financial performance of commercial banks in Ghana.

Purpose of the Study

The main purpose of this study was to assess the relationship between financial distress and financial performance of commercial banks in Ghana.

Research Objectives

The study specifically sought to:

1. assess the level of financial distress of commercial banks in Ghana;
2. examine the effect of financial distress on return on assets of commercial banks in Ghana;
3. analyse the effect of financial distress on return on equity of commercial banks in Ghana.

Research Question

Based on the first research question, the following research question was answered.

1. What is the level of financial distress among commercial banks in Ghana?

Research Hypotheses

Predicated on the theories reviewed, and the last two research objectives, the following hypotheses were tested.

1. H0: There is no statistically significant effect of financial distress on return on assets of commercial banks in Ghana.

2. H0: There is no statistically significant effect of financial distress on return on equity of commercial banks in Ghana.

Significant of the Study

This study yields significant insights into the financial stability and performance of commercial banks in Ghana. Firstly, assessing the level of financial distress provides a comprehensive understanding of the risks and challenges faced by these banks, which is crucial for policymakers, regulators, and stakeholders in the banking sector to formulate effective strategies for risk management and stability enhancement. Secondly, examining the effect of financial distress on Return on Assets (ROA) offers valuable insights into the effect of financial difficulties on the operational efficiency and profitability of banks, highlighting potential areas for improvement in asset management and risk mitigation practices.

Thirdly, analysing the effect of financial distress on Return on Equity (ROE) helps evaluate the long-term sustainability and value creation potential of commercial banks, providing stakeholders with critical information for assessing shareholder returns and making investment decisions. Overall, the study's findings can inform proactive measures to strengthen the resilience and performance of commercial banks in Ghana, contributing to the stability and growth of the country's financial sector.

Theoretically, integrating gambler's ruin theory and financial distress theory into the examination of the effect of financial distress on the financial performance of banks in Ghana offers a comprehensive perspective on risk dynamics within the banking sector. This theoretical synthesis enhances

understanding of the intricate relationship between financial distress, and performance – ROA and ROE, informing stakeholders and policymakers on the formulation of proactive risk management strategies. Ultimately, the study contributes significantly to the financial distress and financial performance literature through advancement of the gambler's ruin theory and financial distress theory.

Delimitations

This study was delimited in several aspects to ensure a focused and manageable investigation. Firstly, it confined its examination to commercial banks operating within the geographic boundaries of Ghana, excluding other financial institutions or banks operating outside the country. Secondly, the study was delimited to a specific time frame, spanning 2012 to 2022, for the assessment of financial distress levels and their effect on Return on Assets (ROA) and Return on Equity (ROE) of commercial banks in Ghana. Historical data beyond this predetermined time frame were not considered.

Thirdly, data used in the study were sourced exclusively from publicly available financial statements published on the websites of 22 commercial banks in Ghana. Any proprietary or confidential data inaccessible through these channels was omitted from the analysis. Fourthly, the analysis was delimited to explore the relationship between financial distress and ROA, as well as financial distress and ROE, accounting for the confounding effects of firm size and firm age to help isolate and understand the specific effect of financial distress. Lastly, the study was

delimited to quantitative analysis using statistical techniques within the explanatory research design.

Limitations

Despite the comprehensive analysis conducted in this study, some limitations should be acknowledged. Firstly, reliance on secondary data introduces inherent limitations, including the potential for inconsistencies in the data sources. While efforts were made to utilise reputable and reliable sources, the accuracy and completeness of the data were subject to external factors beyond the researcher's control. Additionally, the study's scope is constrained by the nature of secondary data, limiting the ability to explore aspects or causality relationships that may require primary data collection methods. Despite these limitations, the study endeavoured to provide valuable insights into the examined phenomena, serving as a foundation for future research endeavours and strategic decision-making processes.

Definition of Terms

The study applied the following definitions.

Financial Performance: Financial performance refers to the ability of a company to generate profits and create value for its stakeholders through efficient management of resources and operations.

Return on Assets: Return on Assets is a financial ratio that measures a company's profitability by expressing its net income as a percentage of its total assets.

Return on Equity: Return on Equity is a financial ratio that measures a company's profitability by expressing its net income as a percentage of its shareholders' equity.

Financial Distress: Financial distress refers to a situation where a company experiences significant difficulty in meeting its financial obligations, such as debt repayments or operational expenses, due to inadequacy of liquidity or profitability.

Organisation of the Study

The study was composed of five chapters. Chapter One involved the introduction which covered the background to the study, statement of the problem, purpose of the study, research objectives, research question, and research hypotheses. It also presented the significance of the study, delimitation, limitations, and definition of terms. Chapter Two focused on the review studies related to financial distress and financial performance. The research methods were captured in Chapter Three. Chapter Four presented the results and discussion of the study, whereas Chapter Five focused on the summary, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter provides a comprehensive review of the relevant literature related to the study. It is divided into four main sections: theoretical framework, conceptual review, empirical review, and conceptual framework. The theoretical framework section discusses the theories that underpin the study, providing a theoretical foundation for the research. The conceptual review section reviews the key concepts relevant to the study, clarifying the terminology and theoretical constructs used. The empirical review section examines previous empirical studies related to the topic, summarising their findings and methodologies. Finally, the conceptual framework section presents the relationships between the key variables, offering a visual representation of the theoretical model guiding the study.

Theoretical Framework

A theoretical framework comprises a set of concepts, assumptions, and propositions that form the foundation of an individual's perspective on the world (Rudestam & Newton, 2014). This theoretical foundation is crucial as it underpins all knowledge constructed during a research study. Therefore, as indicated by Fox, Gardner and Osborne (2015), the application of theory is essential for continuous knowledge development. In this study, the theoretical framework draws upon the gambler's ruin and financial distress theories to establish a theoretical basis for examining the potential link between financial distress and financial performance

of firms. These theories are chosen for their relevance and appropriateness in understanding the dynamics of financial distress and its influence on firm performance (Cervellati, Angelini, & Stella, 2024; Habib et al., 2020).

Gambler's ruin theory

The gambler's ruin theory, a probability theory originally proposed by Pierre-Simon Laplace in the 18th century and later formalised by Joseph Louis François Bertrand in the 19th century, explains the risk inherent in speculative investments and games of chance (Bertrand, 1889). It posits that the likelihood of complete loss increases with heightened risk exposure and extended timeframes (Mandelbrot, 1963; Bertrand, 1889). This theory finds application in finance and economics, particularly in expounding the risk of financial distress and bankruptcy stemming from excessive risk-taking or indebtedness (McDonald, 2005).

Linking it to the study's objectives, the gambler's ruin theory provides a compelling framework for understanding the effect of financial distress on financial performance (Mohd Roslen, Chua, & Hj Mohd Ruslan, 2024). The theory posits that individuals or entities engaging in speculative activities or financial endeavours face the risk of losing everything, especially when they take on excessive risk or leverage (Francis, 2022). Gathoni (2021) explained that this risk increases with the amount of risk taken and the duration of exposure to these risks. Applying this theory to the financial sector, a commercial bank can be envisioned as a company that operates as a gambler at a casino. Initially, the company has a certain level of capital or net worth, analogous to the amount of money a gambler has to wager. As the company engages in business activities, it faces various risks, such as market

volatility, economic downturns, and operational challenges, which can result in financial losses.

If the company experiences a series of losses or adverse events, akin to a gambler losing bets, its financial position deteriorates. The company's net worth diminishes, and it may struggle to cover its expenses, debt obligations, or investment commitments. This situation mirrors the gambler's ruin, where the probability of losing everything increases as the losses accumulate over time. Financial distress sets in when the company's financial resources are depleted to a critical level, jeopardising its ability to continue operations or meet its financial obligations. At this stage, the company may face bankruptcy or insolvency, similar to the gambler reaching a point of complete loss.

The effect of financial distress on financial performance among commercial banks becomes evident in this context. As the a bank grapples with financial distress, its profitability, represented by metrics such as return on assets (ROA) and return on equity (ROE), is likely to decline (Mishraz, Ashok, & Tandon, 2021). As stated by Wilform Jr (2023), reduced profitability may stem from various factors associated with financial distress, including increased borrowing costs, impaired liquidity, diminished investor confidence, and operational inefficiencies. Moreover, the longer the company remains in a state of financial distress, the greater the likelihood of further deterioration in financial performance.

Empirically, based on the gambler's ruin theory, Altman and Hotchkiss (2006) indicated that excessive risk-taking and leverage can lead to financial distress and bankruptcy, culminating in diminished financial performance.

Similarly, Liu, Wu, Yang and Liu (2018) found that excessive risk-taking, which characteristically reflects financial distress and systemic risk, by banks can lead to a fall in profitability of banks. The present study extends the gambler's ruin theory to the study of the relationship between financial distress, and ROA and ROE, as provides a theoretical framework for understanding the relationship between risk-taking, financial distress, bankruptcy, and performance (Wilform Jr, 2023).

However, one limitation of the gambler's ruin theory is its abstraction from real-world financial complexities and the assumption of a simplistic, binary outcome – either winning or losing everything (Coad, Frankish, Roberts, & Storey, 2013). This oversimplification may not fully capture the intricacies of financial distress scenarios, where outcomes can vary in severity and may involve gradual deterioration rather than sudden, catastrophic failure (Diaconis, & Ethier, 2022). Financial distress theory complements the gambler's ruin theory by providing a more detailed understanding of the factors contributing to financial instability and the diverse outcomes associated with it (Perotto, Trabelsi, Combettes, Camps, & Verstaevel, 2021). Unlike the gambler's ruin theory, which focuses primarily on the probability of ruin, Diaconis and Ethier (2022) are of the view that financial distress theory considers a range of factors such as operational challenges, firm size, firm age, market dynamics, stakeholder reactions, and strategic responses to distress.

Financial distress theory

The financial distress theory was developed by Gordon (1971). The main tenet of the theory revolves around the concept that companies face the risk of

financial distress when they encounter challenges in meeting their financial obligations, such as debt repayments or operational expenses (Purnanandam, 2008). As explicated by Oz and Yelkenci (2017), financial distress can arise from various factors, including poor financial management, economic downturns, industry disruptions, or adverse market conditions. Gunawan and Putra (2021) assert that financial distress theory provides valuable insights into how financial instability affects the financial performance of companies. At its core, financial distress theory explains several key mechanisms through which financial difficulties can impact a company's operations and bottom line (Azizah, & Lismawati, 2024).

Firstly, in terms of commercial banks, financial distress may manifest in decreased profitability. As the banks struggle to meet their operational expenses and debt obligations, profitability metrics such as returns on assets (ROA) and returns on equity (ROE) may decline. This erosion of profitability exacerbates the financial challenges faced by distressed commercial banks. Moreover, according to Laksmiwati, Mappadang, Indrabudiman, and Riza (2021), financial distress typically leads to an increase in the cost of capital for companies. Lenders view financially distressed firms as riskier investments, resulting in higher interest rates on debt. This not only reduces the company's (i.e., banks) profitability but also limits its financial flexibility (Sporta, 2018).

Additionally, distressed banks may resort to equity issuance to raise capital, diluting existing shareholders' ownership and further dampening ROE. Financial distress also has implications for market perception and investor confidence. As news of financial troubles spreads, investors may sell off their shares, leading to

stock price declines and liquidity issues. Diminished investor confidence can deter potential business partners, customers, and suppliers, exacerbating a commercial bank's financial challenges. Operational challenges are another consequence of financial distress (García, & Herrero, 2021). Distressed firms often face workforce reductions, delayed investments, and constraints on working capital (Mariano, Izadi, & Pratt, 2021). These operational hurdles impede growth prospects and hinder the firm's ability to generate sustainable revenues and profits (Gillani, Ramakrishnan, Raza, & Ahmad, 2018).

Strategically, financial distress forces companies to make tough decisions aimed at survival. Asset sales, divestitures, restructuring, and bankruptcy filings may be necessary to alleviate immediate financial pressures (Muchori, & Wanjala, 2020). While these actions may provide short-term relief, they can have long-lasting implications for a bank's competitive position and future prospects. Furthermore, financial distress adversely affects various stakeholders, including employees, suppliers, creditors, and shareholders (Ikpesu, Vincent, & Dakare, 2020). For instance, layoffs, payment delays, and potential defaults on obligations strain relationships and may damage banks' reputations, worsening financial difficulties.

Applying the financial distress theory, Shahwan (2015) demonstrated that financial performance could be adversely influenced by poor corporate governance mechanisms believed to have caused financial distress. Similarly, Sporta (2018) drew an association between financial distress and performance, arguing from the perspectives of the financial distress theory. Several other empirical studies applied

this theory to explain how financial distress influences performance in general (Azizah, & Lismawati, 2024; Laksmiwati et al., 2021). The present study, on the other hand combined the financial distress theory with the gambler's ruin theory to explain the relationship between financial distress and specific financial performance measures of ROA and ROA.

Conceptual Review

Conceptual review helps understand the key variables in a study. It provides definitions and explanations of these variables (Wang, & Lo, 2021). Besides, the various measurement techniques of these variables are outlined (Allen, Kern, Rozek, McInerney, & Slavich, 2022). In this study, four key issues are discussed. These are financial distress, financial performance, return on assets and return on equity.

Financial distress

When firms' primary business operations deteriorate to the extent that they can no longer meet their essential financial obligations, they are considered to be in a state of financial distress (Shahwan, 2015). Similarly, when banks struggle to fulfill depositors' demands, they face financial distress, often necessitating the sale of assets to meet these obligations. Several indicators typically precede financial distress, including breaches of debt covenants and reductions or cessation of dividend payments (Baldacci, Gupta, & Mulas-Granados, 2013). According to Claessens and Kose (2013), a firm is deemed to have entered financial distress when its cash flows fall short of its long-term debt obligations for the first time.

Financial distress is usually associated with financial stress, which refers to the situation where a firm approaches bankruptcy (Kawor, 2019). In actuality, financial distress encompasses conditions such as insolvency, among others, arising when a firm's current debt obligations surpass its cash flows, making it challenging to generate sufficient funds to meet creditor demands. Therefore, as Claessens and Kose (2013) explained, the primary indicator of financial distress is a firm's inability to fulfill its contractual debt obligations. This implies that banks should be alerted to financial distress and potential bankruptcy when they begin to default on contractual debt obligations to their clients.

However, Claessens, Kose, Laeven, and Valencia (2014) argue that financial distress signals extend beyond firms' inability to meet debt obligations alone. Many symptoms manifest prior to firms' default, but their subtle nature often makes them difficult to detect (Claessens et al., 2013). It is argued that firms experience financial distress due to economic downturns and poor performance resulting from inadequate management practices (Crowe, Dell'Ariccia, Igan, & Rabanal, 2013; Sikasem, 2017). Al-Khouri (2011) also asserted that financial distress typically begins with adverse economic conditions and costly errors made by ineffective management.

Financial distress is often assessed using the Altman (1968) Z-score, which serves as a proxy measure. Z-scores are utilised to predict corporate defaults and gauge the financial distress status of firms (Dybvig & Warachka, 2015). The Z-score is also commonly employed as an indicator of the inverse of financial distress (Alkhawaja & Görmüş, 2019; Shahwan, 2015). A lower Z-score value suggests a

higher likelihood of the firm facing bankruptcy, while a higher Z-score value indicates a lower likelihood of bankruptcy (Shahwan, 2015; Kamel & Shahwan, 2014). Thus, the Z-score value reflects a firm's level of financial distress. The Z-score model has undergone modifications over time to cater for different types of firms, including privately held, publicly held, and non-manufacturing firms.

The original Altman Z-score model was introduced in 1968 by Professor Edward I. Altman. The formula for the original model is stated as follows:

$$\text{Z-score} = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5 \quad [1]$$

Where:

X_1 = working capital to total assets

X_2 = retained earnings to total assets

X_3 = retained earnings before interest and taxes to total assets

X_4 = market value of equity to book value of total debt

X_5 = sales to total assets

In 1983, Altman revised the model by substituting the firm's book value of equity for the market value in X_4, making it more suitable for privately held firms (Kawor, 2019). The modified version is as follows:

$$\text{Z-score} = 0.717X_1 + 0.847X_2 + 3.107X_3 + 0.420X_4 + 0.998X_5 \quad [2]$$

Ten years later, Altman further revised the model by excluding the (X_5) component (sales to total assets), making it more applicable to non-manufacturing firms such as banks (Altman, Marco, & Varetto, 1994). The revised version is stated as follows:

$$\text{Z-score} = 6.567X_1 + 3.260X_2 + 6.720X_3 + 1.105X_4 \quad [3]$$

However, for the purposes of this study, financial distress was measured using the bank-specific Z-score, defined as [ROA + (equity/assets)]/sd(ROA), where sd(ROA) is the standard deviation of ROA (Laeven & Levine, 2009). Unlike Altman's Z-score, which relies on accounting ratios (e.g., working capital/total assets), the bank-specific Z-score is tailored to banking risks. It captures profitability (ROA), capitalisation (equity/assets), and volatility (sd(ROA)), reflecting banks' exposure to credit and market risks. A lower Z-score indicates higher distress, with values below 1 signaling insolvency risk. This measure's sensitivity to bank-specific dynamics (e.g., loan portfolio quality) justifies its use over Altman's Z-score, which is less suited for financial institutions (Boyd & Runkle, 1993).

Financial performance

Financial performance revolves around the evaluation of a company's effectiveness in utilising its financial resources to achieve its objectives and generate returns for its stakeholders (Okafor, Adeleye, & Adusei, 2021; Shabbir, & Wisdom, 2020). Subramanyam (2014) also defined financial performance as the reflection of a firm's financial status against predetermined goals and standards. There are multiple dimensions to assessing financial performance, each capturing different facets of a firm's operations. Profitability, for instance, evaluates returns, while market share and sales growth measure expansion (Kyere, & Ausloos, 2021).

Liquidity ratios like the current and quick ratios assess short-term solvency, while return on equity and return on investment indicate profitability (Jihadi, Vilantika, Hashemi, Arifin, Bachtiar, & Sholichah, 2021). Additionally, gearing

ratios gauge solvency (Reschiwati, Syahdina, & Handayani, 2022). Monitoring financial performance involves analysing financial data summarised in reports. According to Rhamadana and Triyonowati (2016), this process aids in meeting the information needs of internal and external stakeholders. In this study, Return on Assets (ROA) and Return on Equity (ROE) serve as the criteria for assessing financial performance.

Return on assets

Return on Assets (ROA) is a financial metric indicating how efficiently a company utilises its assets to generate profits (Saputra, 2022). Calculated by dividing net income by total assets, ROA quantifies the profit earned per unit of assets (Panigrahi, & Vachhani, 2021). According to Supriyadi and Terbuka (2021), a higher ROA signifies better profitability and asset utilisation, suggesting effective resource management. Conversely, a lower ROA may indicate inefficiency in generating profits relative to asset investments (Sari, Novari, Fitri, & Nasution, 2022). Widely used by analysts and investors, ROA facilitates performance comparison across industries and tracks trends in profitability and efficiency over time (Sari et al., 2022).

Furthermore, ROA serves as a valuable tool for assessing an organisation's financial health and operational effectiveness (Hidayat, 2021). For instance, when ROA is evaluated, stakeholders can gauge management's ability to generate returns on invested capital and identify areas for improvement in asset utilisation and profitability (Astuti, & Husna, 2020). Moreover, as Sari et al. (2022) put it, ROA provides insights into a company's overall competitiveness and sustainability in its

industry. Analysing ROA trends over multiple periods enables stakeholders to assess the long-term performance trajectory of the organisation and make informed decisions regarding investment opportunities or strategic initiatives (Panigrahi, & Vachhani, 2021). In essence, ROA offers a comprehensive view of an organisation's financial performance, making it a fundamental metric in financial analysis and decision-making processes (Saputra, 2022).

Return on equity

Return on Equity (ROE) is a crucial financial metric that assesses a company's profitability relative to the equity invested by shareholders (Supra, 2022). It is calculated by dividing net income by shareholder equity (Panigrahi, & Vachhani, 2021). Asikin, Saudi, & Roespinoedji (2020) state that ROE measures how efficiently a company utilises shareholder capital to generate profits. A higher ROE signifies better profitability per unit of shareholder equity, indicating efficient utilisation of capital (Choiriyah, Fatimah, Agustina, & Ulfa, 2020). Conversely, a lower ROE suggests suboptimal profitability in relation to shareholder investment (Choiriyah et al., 2020). Investors and analysts rely on ROE to evaluate company performance, comparing profitability across firms within the same industry (Tarsono, 2021).

Furthermore, ROE reflects a firm's ability to generate returns for its shareholders and indicates management's effectiveness in utilising equity financing to drive profitability (Mudzakar, 2021). A consistently high ROE may signal strong financial management and strategic allocation of resources, potentially attracting investors seeking lucrative returns (Ariesa, Tommy, Utami, Maharidha, Siahaan, &

Nainggolan, 2020). However, Silvia (2021) is of the view that it is essential to contextualise ROE within the industry and consider factors such as capital structure, industry dynamics, and economic conditions. Overall, ROE serves as a critical benchmark for assessing shareholder value creation and guiding investment decisions (Ariesa et al., 2020).

Empirical Review

Empirical review is a pivotal component of research methodology that involves analysing existing empirical studies related to a given research topic (Kreuter, Scavarda, Thomé, Hellingrath, & Seeling, 2021). It entails reviewing and synthesising findings, methodologies, and conclusions from previous research studies relevant to the investigation under consideration (Legood, van der Werff, Lee, den Hartog, & van Knippenberg, 2023). This process allowed the researcher to build on existing knowledge, and identify gaps in the literature to inform the research design employed and the hypotheses developed (Kreuter et al., 2021). It also helped the researcher to validate theoretical concepts, test hypotheses, and contribute to the advancement of knowledge in the areas of financial distress and financial performance. In this study, the chronological approach to empirical review was used, presenting and reviewing the studies in order of the years in which they were published (Legood et al., 2023).

Consequently, the focus was placed on studies related to financial distress and financial performance as a whole. This was to ensure that studies were not repeated as majority of the closely related studies dealt with the issues of ROA and ROE in same study. Thematically reviewing these might mean same author (s)

being repeated across themes (i. e., financial distress – ROA, and financial distress – ROE). Based on a comprehensive review of the empirical literature, seven recent studies on direct link between financial distress and firm performance were identified, as they appeared to offer in-depth insights into the potential relationship between financial distress and specific firm performance metrics of ROA and ROE, emphasising why empirical studies on these potential interplays are imperative.

These studies are: Sporta (2018) who looked at the effect of financial distress factors on performance of commercial banks in Kenya; Ernawati et al. (2018) who assessed financial performance, corporate governance, and financial distress; Mahmood et al. (2018) who explored the relationship between financial distress, financial flexibility, and firm performance; Widarwati and Sartika (2019) who considered cost of financial distress and firm performance; Nugroho, Arif and Halik (2021) who studied the effect of financial distress on stock returns, through systematic risk and profitability as mediator variables; Laurens and Mulyani (2022) on financial distress and financial performance on stock return with size as moderating variable, and Vo (2023) on market risk, financial distress and firm performance in Vietnam.

Financial distress and financial performance

Sporta (2018) focused on the effect of financial distress factors on financial performance for commercial banks regulated by Central Bank of Kenya. The study was quantitative and used the descriptive design. A balanced panel data for 43 commercial banks over the period 2005-2015 was collected. For the analysis, the Feasible Generalised Least Squares, random effect model and fixed effect model

based on the Hausman specification were used. It was found that liquidity, leverage, operational efficiency, asset quality and capital adequacy as financial distress factors had a significant relationship with financial performance, with operational efficiency being the most significant determinant of financial distress on financial performance of commercial banks in Kenya. It was recommended that commercial banks should put proper controls in place to mitigate the effects of financial distress factors on financial performance.

Though Sporta (2018) demonstrated that financial distress factors influence financial performance, the specific effect of overall financial distress on financial performance was not considered. Ernawati et al. (2018), therefore, analysed the effect of financial ratios and corporate governance on financial distress by making a prediction model of bankruptcy using data from non-financial sector companies listed on the Indonesia Stock Exchange. It was a quantitative research, and employed the logistic regression model to estimate the data collected from 310 companies. The results revealed that current liabilities to total assets, total liabilities to total assets, sales to total assets, and earnings before tax to total assets had a significant effect on financial distress.

While Ernawati et al. (2018) considered composite financial distress, instead of its factors as in Sporta (2018), they were unable to show how financial distress relates with financial performance. Similarly, Mahmood et al. (2018) empirically investigated the impact of corporate financial flexibility on financial distress and performance of firms listed on the Pakistan Stock Exchange. Firm-level data of 192 non-financial firms covering the period 1992 – 2014 was used.

The fixed effect model logistic regression was applied. The results showed that financially flexible firms are less likely to face financial distress. It is also found that financially flexible firms are more likely to perform well than counterpart firms. Using the Altman z-score as a measure of financial distress it was further revealed that as the Altman z-score increases, the chances of financial distress reduce as well.

Similarly to Ernawati et al. (2018), Mahmood et al. (2018) were also unable to show how financial distress directly influences financial performance. Widarwati and Sartika (2019), thus, examined the relationship between the cost of financial distress and firm performance. Panel data spanning 2011 – 2015 from 231 firms on the Indonesia Stock Exchange (IDX) was used. Employing the panel regression techniques, the analysis found that Indonesia's industry had a higher cost of financial distress and low sales growth after the base year of an uncertainty economy. Cost of distress was also found to harm the firm's sales growth.

Thus far, the foregoing studies could not demonstrate how financial distress directly affects performance (Ernawati et al., 2018; Mahmood et al., 2018; Sporta, 2018; Widarwati, & Sartika, 2019). Nugroho et al. (2021), therefore, in their study, looked at the effect of financial distress on systematic risk and profitability, among others. The data spanning the period 2018-2020 was collected from chemical companies on the Indonesia Stock Exchange. The analysis was done using the PLS-SEM method. The results showed that financial distress significantly impacts stock return through systematic risk and profitability variables. Laurens and Mulyani (2022) also analysed the factors that impact the stock return, focusing on financial

distress, earnings (per share), and price to book value. Panel data spanning the period 2012-2021 was obtained from 28 listed manufacturing companies.

Regression techniques were employed for the data analysis, and the results indicated that earnings (per share), financial distress and price to book value had no impact on stock returns. The study controlled for Investment Opportunity which was found to have a significant effect on stock returns. However, firm size which served as a moderator showed no significant effect. Similar to the studies above, Laurens and Mulyani (2022) also did not look at how financial distress influences financial performance metrics of ROA and ROE. In like manner, while Vo (2023) did not focus on the direct link between financial distress and ROA or ROE, he investigated the effects of market risk, measured using the conditional value-at-risk technique, and financial distress, proxied by the interest coverage ratio (ICR), on the performance of 500 nonfinancial listed firms in Vietnam from 2012 to 2021.

Vo (2023) estimated the optimal interest coverage ratio for the listed firms involved in the study. Specifically, two estimation techniques were used. These were the dynamic panel models, which included two-step difference and system–generalised method of moments, and the panel threshold regression. It was found that increased market risk reduces firm performance. However, a higher interest coverage ratio (lower financial distress) improves a firm's performance. With increased market risk, the financial performance of firms with a high-interest coverage ratio deteriorates significantly.

Azizah and Lismawati (2024) examined financial distress and performance in Indonesian firms, using Altman's Z-score. Panel regression results showed that

distress negatively affected ROA ($\beta = -0.21$, $p < 0.05$) and ROE ($\beta = -0.18$, $p < 0.05$), attributed to liquidity constraints. The study's broad sector scope overlooks bank-specific risks like NPLs. Ayagre, Aboagye, Sarpong-Kumankoma and Asuming (2024) studied bank mergers in Sub-Saharan Africa, including Ghana, finding that post-merger distress reduced ROE by 0.3% due to integration costs. While relevant, the study did not isolate distress effects on ROA. Oppong et al. (2024) explored internal controls and bank performance in Ghana, noting that distress (measured by loan loss provisions) lowered ROA by 0.25% ($p < 0.01$). The study's focus on governance limits its distress-performance scope.

Owusu et al. (2024) analysed governance and bank stability in Ghana, finding that distress negatively impacted ROE ($\beta = -0.22$, $p < 0.05$) due to capital inadequacy. However, the study ignored ROA. These studies confirm a negative distress-performance link but are limited by non-banking focus, and partial metric coverage. All in all, while the studies reviewed have, from different perspectives, investigated financial distress and how it correlates with various indicators of performance, there is still enough evidence to conclude that how financial distress influences financial performance metrics of ROA and ROE has not been given the desired attention (Ernawati et al., 2018; Gathoni, 2021; Widarwati & Sartika, 2019; Vo, 2023). This is even overarching as theories, such as gambler's ruin theory and financial distress theory, are clear on the potential connections between financial distress, and ROA and ROE (Francis, 2022; Mohd Roslen et al., 2024). The present study seeks to contribute to closing this empirical gap.

Lessons Learnt from the Theoretical and Empirical Reviews

Most studies on financial distress and performance have primarily utilised quantitative methods, employing regression techniques to examine relationships. Furthermore, many of these prior studies have predominantly relied on secondary panel data. Despite this extensive research, it is notable that little attention has been exclusively devoted to the banking sector, a gap that the present study aims to address. Moreover, while some studies have identified firm size and age as significant independent variables, implying their relevance in models linking financial distress to performance, others have neglected to control for their confounding effects when these variables were not the primary focus. This discrepancy contrasts with the assertions of financial distress theory, which emphasises the importance of considering factors such as firm size and age in such contexts. In this study, the researcher controlled for the effects of these factors, and they are discussed below.

Covariates

In previous studies, firm size and firm age have been utilised as control variables (Dewi & Sapruwan, 2024; Vo, 2023). Theories such as the financial distress theory have also recognised the potential influence of these factors on firm performance (Gunawan & Putra, 2021; Oz & Yelkenci, 2017). According to D'Amato and Falivena (2020), firm size refers to the total resources of an organisation. While some studies measure it using the number of employees, others use metrics such as total physical assets or total investments (Mubeen, Han, Abbas,

Raza, & Bodian, 2022). In this study, total assets are employed as a measure of firm size.

On the other hand, firm age pertains to how long a firm has been in operation since its establishment or inception (Mubeen et al., 2022). It simply reflects the number of years a business has been operating from its inception (Hadid & Hamdan, 2022). This study also adopts this understanding, utilising the number of years since the establishment of the firm as a measure of firm age.

Conceptual Framework

The conclusion drawn from the empirical review is in line with theoretical assertions suggesting that financial distress may indeed influence financial performance. However, studies have yet to fully extend this theoretical position to examine the relationship between financial distress and specific financial performance ratios such as ROA and ROE. The present study addresses this gap, hypothesising, based on existing theories, that financial distress may indeed influence ROA and ROE. These hypothesised relationships are depicted in Figure 1. In the figure, the arrows originating from the financial distress rectangle and pointing towards the ROA and ROE quarters represent the hypothesised direct relationships between financial distress and these variables. Additionally, the broken arrow extending from the financial distress rectangle towards the financial performance oval signifies the foundational relationship between financial distress and overall financial performance, as inferred from theoretical perspectives (Azizah & Lismawati, 2024; Gathoni, 2021).

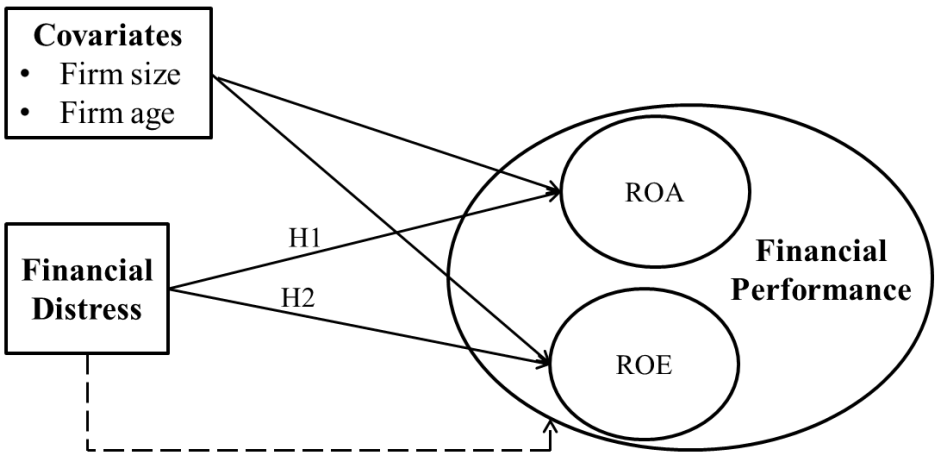

Figure 1: Conceptual framework

Source: Author's construct (2024)

Chapter Summary

The chapter provides a comprehensive review of theories, concepts, and empirical studies, with a particular focus on the gambler's ruin and financial distress theories. These theories formed the foundation of the study, supported by empirical evidence from various sources. It became apparent that financial distress may indeed influence ROA and ROE. However, the empirical evidence on these relationships was limited, indicating the necessity for further empirical investigation to elucidate how financial distress impacts ROA and ROE. This study is particularly relevant as it aims to examine the relationship between financial distress and financial performance, specifically focusing on the ROA and ROE of commercial banks in Ghana.

CHAPTER THREE

RESEARCH METHODS

Introduction

The main purpose of this study was to assess the relationship between financial distress and financial performance of commercial banks in Ghana. This chapter, thus, presents the research approach, research design, study area, population, data screening procedure, data and data source, model specification, variable measurements, and data processing and analysis. The chapter concluded with a summary.

Research Approach

Consistent with previous related studies (Laurens, & Mulyani, 2022), the present study employed the quantitative research approach. This is due to the fact that, just like Ernawati et al. (2018) and Nugroho et al. (2021), this study sought to use quantitative data to describe relationships between financial distress and financial performance, focusing on indicators of ROA and ROE. According to Creswell (2018), quantitative approach places emphasis on measurements and numerical analysis of data to provide descriptions, as well as draw inferences. Besides, majority of prior studies on financial distress and financial performance have argued that data collected from secondary sources could be analysed easily using both descriptive and inferential statistics (Mahmood et al., 2018).

According to Saunders et al. (2019), quantitative approach has techniques, measures and designs that come up with numerical and quantifiable data that could

easily be applied in the measurement of financial distress and financial performance of firms. Creswell (2018) has also contended that quantitative approach is based on principles of verifiability of proof, substantiation and confirmation, and utilisation of correct measurement of variables, such as financial distress, return on assets, and return on equity used in the present study**.** Consequently, most of the prior studies measured these variables quantitatively (Ernawati et al., 2018; Mahmood et al., 2018; Sporta, 2018).

Research Design

Prior related studies used the explanatory design for the study of the relationship between financial distress and financial performance (Widarwati, & Sartika, 2019; Vo, 2023). As a result, the explanatory design was employed for this study. Saunders et al. (2019) indicated that this design helps to explain the cause and occurrence of a given phenomenon, as well as helps to account for relationships between or among variables. These are in line with the present study as the researcher sought to examine the relationship between financial distress and financial performance (i.e., ROA and ROE). Furthermore, the explanatory design has embedded in it descriptive techniques which describe data sets before inferential statistics are performed (Saunders et al., 2019). Gathoni (2021) and Mohd Roslen et al. (2024) who studied issues related to financial distress and financial performance used the explanatory research design.

Population

The population of interest for this study was commercial banks in Ghana. This industry was chosen because it has become an area of focus since the financial

crisis that hit the industry between 2017 and 2019 traced its sources to the banking industry and, virtually, all the banks affected were commercial banks (BoG, 2020). The banks within the industry included both private commercial banks and public commercial banks. These banks' operations involve deposit-taking and advancing of loans to individuals, thereby, exposing them to finance related issues than other institutions within the financial industry.

Available official statistics from the Bank of Ghana indicated that there were 23 commercial banks in Ghana (BoG, 2020). These 23 banks made up the population for this study. These banks have branches located across Ghana. Almost all the banks have their head offices located in the country's capital, Greater Accra. Due to the crisis experienced by the sector, some of the banks were made to merge to form a single entity, and this contributed to the reduction in the number of commercial banks in Ghana to the present number of 23.

Data Screening Procedure

Twenty-two commercial banks were involved in the study. To arrive at the 22 commercial banks, the criterion sampling technique was employed, implying that for a bank to be included in the sample, a set of criteria must be satisfied. First, the bank must have been duly registered and recognised by the Bank of Ghana. Second, the bank should have published audited annual reports for the periods 2011 to 2021. Finally, the bank should be independent not consolidated. Considering these criteria, 22 banks made it to the final sample.

Data and Data Source

The data for the study were obtained from the consolidated annual statements of the 22 commercial banks making up the sample size for the study. These include both listed and non-listed banks. Data for the computation of measures for variables of financial distress and ROA and ROE were extracted from the annual reports of the banks. The data spanned 11 years – from 2011 to 2021. In all, 242 (11×22) observations were produced. Table 1 presents a summary of the commercial banks, listing status, source of data, type of data extracted, and the period considered.

Table 1: Summary of Data Source

Name	Listing status as of April, 2024	Figures extracted	Source	Extraction strategy	Period
Absa Bank Ghana Limited	Non-listed	Profit, retained earnings, earnings before interest and taxes; revenue, asset, equity, total liabilities; cash and cash equivalents, investment securities; impaired loans, loans and advances to customers; deposits	Consolidated financial statements	Document analysis	2011-2021
Access Bank Plc.	Listed				
Agricultural Development Bank	Listed				
Bank of Africa Limited	Non-listed				
CalBank Limited	Listed				
Ecobank Ghana Limited	Listed				
FBN Bank Limited	Non-listed				
Fidelity Bank	Non-listed				
First Atlantic Bank Limited	Non-listed				
First National Bank Ghana	Non-listed				
GCB Bank	Listed				
Guaranty Trust Bank	Non-listed				
National Investment Bank	Non-listed				
OmniBSIC Bank Ghana Limited	Non-listed				
Prudential Bank	Non-listed				
Republic Bank Ghana Limited	Non-listed				
Societe Generale Ghana Limited	Listed				
Stanbic Bank	Non-listed				
Standard Chartered Bank	Non-listed				
United Bank for Africa Limited	Non-listed				
Universal Merchant Bank	Non-listed				
Zenith Bank	Non-listed				

Source: Author's compilation (2024)

Model Specification

This section displays the statistical model employed. It specifies the variables, their functional form, the relationships between them, and the assumptions about data underpinning the model. Two specific models were specified herein. These were the theoretical model, predicated on the theories and models underpinning the study, and an empirical model drawing on the key variables of the study.

Theoretical model

Based on the theories (McDonald, 2005; Purnanandam, 2008) underpinning the study, the following fixed model can be deduced.

$z_{it} = A_{it}\gamma + \varepsilon_{it}$ .....(1)

Where, *z* covers issues including financial performance (i.e., ROA and ROE), *A* is the estimated magnitude of the effect of γ which encompasses factors such as financial distress, firms size and firm age, and ε_{it} is error term. This model was further expanded and modified into a panel model to fit empirical data. The modified model is specified in Equation 2.

$Financial\_performance_{it} = \partial_i + A_{it}\gamma + \varepsilon_{it}$ .....(2)

Equation (2) is split to the specific performance indicators as follows:

$ROA_{it} = \partial_i + A_{it}\gamma + \varepsilon_{it}$ .....(2a)

$ROE_{it} = \partial_i + A_{it}\gamma + \varepsilon_{it}$ .....(2b)

Where ROA = return on assets, and ROE = return on equity

Empirical model

The empirical estimated models are specified in equations 3a and 3b.

$$ROA_{it} = \beta_0 + \beta_1 Financial\ distress_{it} + \beta_2 Firm\ size_{it} + \beta_3 Firm\ age_{it} + \varepsilon_{it} \quad (3a)$$

$$ROE_{it} = \beta_0 + \beta_1 Financial\ distress_{it} + \beta_2 Firm\ size_{it} + \beta_3 Firm\ age_{it} + \varepsilon_{it} \quad (3b)$$

Where β denotes the coefficients, ε represents the error term, whilst *it* denotes commercial bank *i* at time *t*. The models were further stated giving cognisance of the proxies used for the key variables. These are presented in equations 4a and 4b.

$$\ln\left[\frac{net\ income}{total\ assets}\right]_{it} = \beta_0 + \beta_1 lnZ - score_{it} + \beta_2 lntotal\ assets_{it} + \beta_3 lnNumber\ of\ years\ since\ inception_{it} + \varepsilon_{it} \quad (4a)$$

$$\ln\left[\frac{net\ income}{equity}\right]_{it} = \beta_0 + \beta_1 lnZ - score_{it} + \beta_2 lntotal\ assets_{it} + \beta_3 lnNumber\ of\ years\ since\ inception_{it} + \varepsilon_{it} \quad (4b)$$

But: Z-score = Bank-specific Z-score = financial distress = [ROA + (equity/assets)]/sd(ROA) (Boyd & Runkle, 1993; Laeven & Levine, 2009)

Operationalisation and Measurement of Variables

The dependent variables, as indicated in Figure 1, were return on assets and return on equity. The independent variable was financial distress, while the control variables were firm size and firm age. Table 2 presents a summary of the variables, their roles, operational definitions, measurements/proxies, sources, and empirical justifications.

Table 2: Operationalisation and Measurements of Variables

Variables	Role	Operational definition	Measurements/proxies	Sources	Empirical justifications
ROA	DV	A bank's net income as a percentage of its total assets	Natural logarithm of the ratio of net income to total assets [ln(net income/total assets)]	Annual reports	Dewi, & Sapruwan, 2024
ROE	DV	A bank's net income as a percentage of its shareholders' equity	Natural logarithm of the ratio of net income to equity [ln(net income/equity)]	Annual reports	Saputra, 2022
Financial distress	IV	Inadequacy of liquidity or profitability	Natural log of z-score value [ROA + (equity/assets)]/sd(ROA)	Annual reports	Boyd & Runkle, 1993; Laeven & Levine, 2009
Firm size	CV	A bank's total resources/assets	Natural log of total assets [ln(total assets)]	Annual reports	D'Amato and Falivena, 2020
Firm age	CV	Number of years since a bank's inception	Natural log of total number of years [log(years)]	Annual reports	Hadid, & Hamdan, 2022

Note: ROA = return on assets, ROE is return on equity, DV =dependent variable, IV = independent variables, CV = control variable
Source: Author's construct (2024)

Data Processing and Analysis

The first objective, assessing the level of financial distress of commercial banks in Ghana, was analysed using the bank-specific Z-Score model – a widely used method for assessing banks' financial distress severity (Laeven & Levine, 2009). Firms are classified into different categories (zones) based on their Z-Score as follows: Z-Score > 2.99 – Safe zone (low financial distress); 1.81 < Z-Score ≤ 2.99 – Grey zone (moderate financial distress, caution advised); and Z-Score ≤ 1.81 – Distress zone (severe financial distress, high risk of bankruptcy) (Alkhawaja & Görmüş, 2019; Shahwan, 2015).

Next, models 4a and 4b were estimated using fixed effects and random effects estimators, accounting for bank-specific unobserved heterogeneity that is time-invariant (e.g., management quality). Fixed effects control for within-bank variations, assuming unobserved factors are correlated with regressors, while random effects assume no correlation, suitable for bank-specific traits like location (Wooldridge, 2010). The Hausman test determines the appropriate model, with a significant test statistic ($p < 0.05$) favouring fixed effects (Plümper & Troeger, 2019). To address potential endogeneity (e.g., reverse causality between distress and performance), system generalised method of moments (SGMM) was used for robustness, incorporating lagged variables as instruments (Arellano & Bover, 1995). The ordinary least squares (OLS) were also employed to ensure consistency in the results (Amini, Delgado, Henderson & Parmeter, 2012). These approaches ensures consistent and efficient estimates, mitigating biases from unobserved

effects and endogeneity (Bai, Choi & Liao, 2021; Schielzeth et al., 2020; Tobin & Fisher, 2005).

Moreover, aside diagnostic test of serial correlation using the Woodridge Test of Autocorrelation, the Pearson correlation was employed to assess the bivariate associations between the independent variables to ensure that issues of multicollinearity are taken care of (Alin, 2010). A correlation coefficient of less than 0.7 between independent variables suggests that multicollinearity may not be a significant issue (Shrestha, 2020). Descriptive statistics of mean, standard deviation, skewness and kurtosis were also conducted to display the overall distribution of the data, in respect of the individual variables. Yet again, the stationarity or unit root test, using the Fisher's method, was conducted to ensure that the data did not contain a unit root.

Chapter Summary

This chapter presented the methodology employed for the study. The study was quantitative and used the explanatory research design. The focus was on commercial banks in Ghana. In total, there were 23 commercial banks in Ghana at the time of the study. However, using the criterion sampling technique, 22 commercial banks made up the sample for the study. Data was extracted from the annual reports of these banks. Several estimation procedures were carried out, including fixed effect, random effect, OLS, and GMM.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The main purpose of this study was to assess the relationship between financial distress and financial performance of commercial banks in Ghana. The chapter is organised into nine sections. These are Normality Test; Stationarity Test; Summary Descriptive Statistics; Correlation Analysis; Hausman Test; Analysis of Relationship between Financial Distress and Financial Performance (ROA and ROE); Discussion of Results, which is presented based on the order of the research objectives; Summary of Hypotheses Test Results, and Chapter Summary.

Normality Test

To assess normality of the data on the various variables, skewness and kurtosis were used. Skewness measures the degree and direction of symmetry. A perfectly symmetric distribution, such as a normal distribution, has a skewness of zero (Hatem, Zeidan, Goossens, & Moreira, 2022). However, according to Gauss Markov theorem of distribution, data with skewness between +1 and -1 is considered normally distributed (Gujarati, 2003). On the other hand, Kurtosis was used to measure the heaviness of the tails of a distribution. As explained by Hatem et al. (2022), for data to be considered normally distributed, it must have a kurtosis score of between -3 and +3. Table 3 displays the results.

Table 3: Skewness and Kurtosis

Variables	Skewness (Sk)	Kurtosis (Ku)	Excess Kurtosis
lnROA	0.0421	2.0372	-0.7410
lnROE	-0.5452	1.7027	-0.1771
lnFD	0.1530	1.6909	-1.1022
lnFS	-0.5433	1.5550	-1.2301
lnFA	0.1432	2.0101	-0.8651

Note: ROA = return on assets, ROE = return on equity, FD = financial distress, FS = firm size, FA = firm age, ln = natural log
Source: Annual reports, 2011-2021

According to the results in Table 3, ROA was slightly positively skewed (Sk = 0.0421) but normally distributed per Gujarati (2003). The kurtosis and excess kurtosis values were 2.0372 and -0.7410, respectively, also implying that the distribution of ROA was normal (Gujarati, 2003). Similarly, ROE was normally distributed with skewness and kurtosis statistics of -0.5452 and 1.7027, correspondingly. Financial distress was also normally distributed with skewness of 0.1530 and kurtosis of 1.6909. Additionally, the results revealed that firm size (Sk = -0.5433, Ku = 1.5550) and firm age (Sk = 0.1432, Ku = 2.0101) were normally distributed (Bai, & Ng, 2005; Demir, 2022).

Stationarity Test

Many time series analysis techniques rely on the assumption of stationarity. Stationarity implies that the statistical properties of time series, such as mean, variance, and autocorrelation, do not change over time (Hadri, 2000). Thus, the stationarity test was conducted to help verify whether this assumption holds true

for the data at hand. The test was carried out using the Fisher's method. In the context of panel data, the Fisher's method performs a unit-root test on each panel's series separately, and then combines the p-values to obtain an overall test of whether the panel series contain a unit root. The null hypothesis tested by Fisher was that all panels contain a unit root. The results are displayed in Table 4.

Table 4: Stationarity Test on Variables

Variables	Inverse Chi-squared (p-value)	Inverse normal (p-value)	Inverse logit (p-value)	Modified inv. Chi-squared (p-value)
lnROA	434.2011(0.000)	-6.8341 (0.000)	-13.5231 (0.000)	27.1023(0.000)
lnROE	679.3213(0.000)	-12.0774 (0.000)	-18.4352 (0.000)	23.8723(0.000)
lnFD	487.1131(0.000)	-6.0333 (0.000)	-13.6921 (0.000)	29.0999(0.000)
lnFS	775.2240(0.000)	-9.0122 (0.000)	-21.2911 (0.000)	34.2453(0.000)
lnFA	527.3500(0.000)	-4.4334 (0.000)	-17.6781 (0.000)	42.1973(0.000)

Note: ROA = return on assets, ROE = return on equity, FD = financial distress, FS = firm size, FA = firm age, ln = natural log
Source: Annual reports, 2011-2021

As could be seen from Table 4, all p-values for the inverse chi-squared, inverse normal, inverse logit, and modified inverse chi-squared under all variables were less than the alpha value of 0.05. This indicates rejection of all the null hypotheses that return on assets, return on equity, financial distress, firm size, and

firm age panels contained unit roots, suggesting that the panels were stationary. It should be noted that the analyses were done at the natural log data level, not further differenced, or transformed.

Summary Descriptive Statistics

This section presents descriptive statistics of the various variables. Mean and standard deviation were used for the analysis. While these show the average levels of return on assets, return on equity, average bank size, and average age of banks, it directly analyses the first research objective which seeks to assess the level of financial distress of commercial banks in Ghana. It should be noted that, to ascertain the actual mean age of the banks, the data on age was not natural log-transformed. The outcomes of the analysis are displayed in Table 5.

Table 5: Descriptive Statistics of Variables

Variables	Mean	Standard deviation
lnROA	0.2791	0.1447
lnROE	0.2342	0.7333
lnFD	0.3005	0.5921
lnFS (in GHS)	18.6217	9.6656
FA (in years)	28.6200	14.8610

Note: ROA = return on assets, ROE = return on equity, FD = financial distress, FS = firm size, FA = firm age, ln = natural log
Source: Annual reports, 2011-2021

Table 5 presents descriptive statistics for the various financial variables of Return on Assets (ROA), Return on Equity (ROE), Financial Distress (FD), Firm Size (FS), and Firm Age (FA), extracted from annual reports spanning the period

2011-2021. Overall, the descriptive statistics suggest that the sampled banks tend to have positive returns on assets and equity, with varying levels of financial distress. Additionally, there is considerable variability in firm size and age within the sample, indicating diversity among the observed commercial.

Specifically, the mean lnROA was calculated at 0.2791 with a standard deviation of 0.1447, indicating that, on average, the return on assets for the commercial banks in Ghana within the period studied tends to be positive, with a moderate level of variability around this average. LnROE, on the other hand, had a mean of 0.2342 and a relatively higher standard deviation of 0.7333, suggesting that while the average return on equity was positive, there was a wider spread of data points around this average compared to ROA, indicating greater variability in returns for shareholders. Averagely, these statistics indicated a positive financial performance among the commercial banks within the period of study.

Financial distress exhibited a mean score of 0.2914 and a standard deviation of 0.6013. This suggested that financial distress had a positive average value, with moderate variability among commercial banks. Nonetheless, having used the bank-specific z-score as measure of financial distress, an average z-score below 1.23, as reported herein, indicated that the commercial banks were in severe financial distress and at high risk of bankruptcy (Alkhawaja, & Görmüş, 2019; Shahwan, 2015). As expounded by Claessens and Kose (2013) and Kawor (2019), these banks might have significant debt burdens, poor profitability, or other critical financial weaknesses that make their survival uncertain without significant intervention.

Firm size had a considerably higher mean of 18.6217 and a larger standard deviation of 9.6656. This indicated that the sizes of the banks, depicted by logged values, varied widely among the sampled commercial banks. Finally, firm age (FA), measured in years, had a mean of 28.6200 and a standard deviation of 14.8610, implying, on average, the commercial banks in the sample were relatively mature, with a moderate level of variability in their ages. It could also be said that the average age of the sampled 22 commercial banks in Ghana within the study period was approximately 29 years.

Correlation Analysis

This section shows how the variables relate to each other. This was done computing the associations between return on assets, return on equity, financial distress, firm size, and firm age. The analysis was conducted using the Pearson Product-moment correlation coefficient. The results are displayed in Table 6.

Table 6: Correlation Coefficients

Variables	1	2	3	4	5
lnROA (1)	1.0000				
lnROE (2)	0.4332**	1.0000			
lnFD (3)	-0.2998*	-0.4191**	1.0000		
lnFS (4)	0.6471**	0.1125**	-0.3572	1.0000	
lnFA (5)	-0.5050**	0.2554**	-0.4042	0.6403**	1.0000

*Note: *, ** represent significance at 1% and 5%, respectively; ROA = return on assets, ROE = return on equity, FD = financial distress, FS = firm size, FA = firm age, ln = natural log*
Source: Annual reports, 2011-2021

The findings from Table 6 revealed some important information about how the various variables associate with each other. Firstly, the results indicated that ROA was moderately (Cohen, 1988) and positively correlated with ROE ($r = 0.4332$, $p < 0.05$). While this association was statistically significant, it suggests that an improvement in commercial banks' return on assets is accompanied by an increase in return on equity, without implying causality. This falls in line as both ROA and ROE incorporate same net income value (Asikin et al., 2020; Panigrahi, & Vachhani, 2021). Moreover, equity feeds into the computation of total assets, considering the accounting equation [i.e., Assets = Liabilities + Equity]. These affirm the reasoning that, as ROA increases, ROE is also likely to increase (Mudzakar, 2021).

Financial distress was significantly and negatively related with ROA ($r = -0.2998$, $p < 0.01$) and ROE ($r = -0.4191$, $p < 0.05$), implying that increased level of financial distress might be associated with dwindled return on assets and return on equity. Mahmood et al. (2018) reported similar findings, as they concluded that financially distressed firms mostly exhibit poor financial performance. Additionally, while firm size positively correlated with return on assets ($r = 0.6471$, $p < 0.05$) and return on equity ($r = 0.1125$, $p < 0.05$), it had no noteworthy relationship with financial distress ($r = -0.3572$, $p > 0.05$). Similarly, firm age had no statistically significant association with financial distress ($r = -0.4042$, $p > 0.05$), but significantly associated with ROA ($r = -0.5050$, $p < 0.05$) and ROE ($r = 0.2554$, $p < 0.05$). None of the correlation coefficients exceeded 0.70, indicating that the

independent variables were not highly correlated and suggesting no significant issue of multicollinearity (Shrestha, 2020).

Hausman Test

Hausman test was carried out for the specified panel regression model to establish which panel effects provided better estimation results for the study. This was to help decide between fixed effect model and random effect model. The null hypothesis is that random effect was the preferred model. The test was run separately for each of the financial performance measures – ROA and ROE, to determine the most appropriate estimation model for each. The results are displayed in Tables 7 and 8 for ROA and ROE, respectively.

Table 7: Hausman Statistics (ROA)

Variables	Fixed (b)	Random (B)	b-B	sqrt(diag(V_b-V_B))
lnFD	-0.1824	0.1203	0.017	0.0081
lnFS	-1.3020	-1.0848	-0.2172	0.4288
lnFA	-0.1429	-0.1272	-0.017	0.0442
chi^2	9.8129	Prob>chi^2		0.0269

Note: Dependent variable = ROA; ROA = return on assets, FD = financial distress, FS = firm size, FA = firm age, ln = natural log
Source: Annual reports, 2011-2021

The results showed a chi-square value of 16.6213 and a corresponding p-value of 0.0269 (Table 7), indicating that the chi-square statistic was significant at the 5% level. This implies that there was enough evidence to reject the null hypothesis that random effects model is an appropriate estimate for the panel regression model. The fixed effect model was therefore supported as the consistent

estimate for the specified model. The test statistics on ROE are presented in Table 8.

Table 8: Hausman Statistics (ROE)

Variables	Fixed (b)	Random (B)	b-B	sqrt(diag(V_b-V_B))
lnFD	-0.2332	0.1092	0.019	0.0076
lnFS	-1.0101	-1.0567	-0.413	0.4308
lnFA	-0.2350	-0. 1743	-0.020	0.0425
chi^2	14.0079	Prob>chi^2		0.0272

Note: Dependent variable = ROE; ROE = return on equity, FD = financial distress, FS = firm size, FA = firm age, ln = natural log
Source: Annual reports, 2011-2021

In Table 8, the statistics have revealed a chi-square value of 14.0079 and a corresponding p-value of 0.0272 which is less than the Alpha value of 5%. This indicates that the values are statistically significant, supporting the rejection of the null hypothesis that random effects model is an appropriate estimate for the panel regression model for ROE. The fixed effect model was therefore upheld as the reliable estimate for the specified model.

Analysis of Relationship between Financial Distress and Financial Performance (ROA and ROE)

Following the Hausman test, the fixed model was used to estimate the regression models specified in equations (4a) and (4b). The analysis was carried out in two parts. The first part analysed the effects of financial distress, firm size and firm age on return on assets (ROA), while the second parts looked at how

financial distress, firm size and firm age influence return on equity (ROE). The results are displayed in Tables 9 and 10 for ROA and ROE, respectively.

Table 9: Financial Distress and ROA

	(1) FE	(2) OLS	(3) SGMM (2-step)
Variables	β	β	B
L.ROA	–	–	0.2142**
			(0.0712)
lnFD	-0.1824**	-0.1296**	-0.1701**
	(0.0210)	(0.0251)	(0.0501)
lnFS	-1.4510**	-1.1011**	-1.4610**
	(0.1712)	(0.0982)	(0.0952)
lnFA	-0.1429**	-0.1324**	-0.1388**
	(0.0401)	(0.0222)	(0.0151)
Constant	-0.0712 (0.2003)	-0.0623 (0.1125)	-0.0127 (0.0128)
F-statistic	34.0092	20.7789	–
	($p < 0.01$)	($p < 0.01$)	
Wald χ^2	–	–	32.9851
			($p < 0.01$)
R^2 (within)	0.4177	0.4021	–
Diagnostics (SGMM)			
AR(1) (p-value)	–	–	-2.321 (0.0202)
AR(2) (p-value)	–	–	-0.774 (0.4387)
Hansen J (p-value)	–	–	18.223 (0.3176)
Instruments used	–	–	28
Number of groups	–	–	60
Observations	242	242	242

*Note: standard errors are in parentheses; Dependent variable = ROA; ROA = return on assets, FD = financial distress, FS = firm size, FA = firm age, ln = natural log; standard errors are in parentheses; *, ** represent significance at 5% and 1%, respectively; OLS = Ordinary Least Squares, SGMM = System Generalised Method of Moments*
Source: Annual reports, 2011-2021

As shown in Table 9, in addition to the main analysis of the relationship between financial distress (FD) and return on assets (ROA) among commercial banks in Ghana, several other statistics were reported. The diagnostics for the System GMM (SGMM) model included the Arellano-Bond test for autocorrelation (AR(1) and AR(2)), as well as the Hansen J test for instrument validity. These tests

help ensure that the model is well-specified and that the instruments used are valid. The results indicated no evidence of significant serial correlation or overidentification issues, reinforcing the reliability of the SGMM estimation.

Post-estimation statistics were conducted for models two (OLS) and three (SGMM) to further examine, validate, interpret, and gain insights into the results obtained from the fixed-effect regression model (FE) adopted. As shown in Table 8, the results obtained from the OLS and SGMM estimations were similar to those from the FE model, confirming the reliability of the FE model. Thus, focusing on the results under FE, it could be seen that financial distress and the covariates of firm size and firm age explain more than 40% of the total variation in return on assets of commercial banks in Ghana.

Finance distress and all covariates are negatively related to return on assets. All the relationships were statistically significant at the 1% level. More specifically, the effect of financial distress on ROA was significant after controlling for firm age and firm size. Statistically, a unit change in financial distress would lead to a 0.1824 decrease in ROA of commercial banks in Ghana. This implies that high levels of financial distress are inimical to financial performance, in terms of return on assets. Similarly, as the commercial banks increase in size ($\beta = -1.4510$, $p < 0.01$) and age ($\beta = -0.1429$, $p < 0.01$), their return on assets dwindles.

Table 10: Financial Distress and ROE

	(1) FE	(2) OLS	(3) SGMM (2-step)
Variables	β	β	B
L.ROE	–	–	0.2121**
			(0.0712)
lnFD	-0.1675**	-0.1412**	-0.1593**
	(0.0200)	(0.0225)	(0.0480)

lnFS	-1.2875** (0.1560)	-1.0725** (0.0920)	-1.3125** (0.0880)
lnFA	-0.1300** (0.0360)	-0.1200** (0.0180)	-0.1250** (0.0120)
Constant	-0.0635 (0.1865)	-0.0560 (0.1095)	-0.0100 (0.0115)
F-statistic	31.0050 ($p < 0.01$)	19.0050 ($p < 0.01$)	–
Wald χ^2	–	–	29.9850 ($p < 0.01$)
R^2	0.3970	0.3805	–
Diagnostics (SGMM)			
AR(1) (p-value)	–	–	-1.982 (0.0234)
AR(2) (p-value)	–	–	-0.532 (0.5951)
Hansen J (p-value)	–	–	22.442 (0.3245)
Instruments used	–	–	28
Number of groups	–	–	60
Observations	242	242	242

*Note: standard errors are in parentheses; Dependent variable = ROE; ROE = return on equity, FD = financial distress, FS = firm size, FA = firm age, ln = natural log; standard errors are in parentheses; *, ** represent significance at 5% and 1%, respectively; OLS = Ordinary Least Squares, SGMM = System Generalised Method of Moments*
Source: Annual reports, 2011-2021

Regarding the FE statistics, the R-square value, which indicates the proportion of variance in ROE explained by financial distress and the covariates, exceeded 30%. Following Ozili (2023), this indicates that the results merit further discussion. Post-estimation statistics were conducted for OLS and SGMM to further examine, validate, interpret, and gain insights into the results obtained from the fixed-effect estimator. As shown in Table 10, the results obtained from the OLS and SGMM estimations were similar to those from the FE model – in terms of significance and direction – confirming the reliability of the FE model.

Finance distress and all covariates significantly and negatively influenced return on equity. Specifically, the effect of financial distress on ROE was significant after controlling for firm age and firm size. Statistically, a unit change

in financial distress would lead to a 0.1675 decrease in ROE of commercial banks in Ghana. This indicated that high levels of financial distress were detrimental to the financial health, in terms of return on equity, of commercial banks in Ghana ($\beta = -0.1675$, $p < 0.01$). Likewise, as the total assets of commercial banks increased (firm size) ($\beta = -1.2875$, $p < 0.01$), their return on equity declined. In like manner, the older a commercial bank, the lower its return on equity ($\beta = -0.1300$, $p < 0.01$).

Discussion of Results

The study determined the effect of financial distress on return on assets and return on equity of commercial banks in Ghana. Specifically, three research objectives were analysed, and the discussions are presented in the order in which they were listed. First, the level of financial distress of commercial banks in Ghana is discussed. Next, the effect of financial distress on return on assets of commercial banks in Ghana is discussed. Finally, a discussion of the effect of financial distress on return on equity of commercial banks in Ghana is presented.

Level of financial distress of commercial banks in Ghana

The first research objective was to assess the level of financial distress of commercial banks in Ghana. Upon analysis, it was found that the level of financial distress among these banks was severe (Table 5). This finding might be attributed to several factors. Firstly, macroeconomic instability within Ghana, such as fluctuations in interest rates, inflation rates, and exchange rates, could have contributed to the high level of financial distress among commercial banks. Economic uncertainties and downturns often lead to increased default rates on

loans, reduced demand for banking services, and higher operating costs, all of which could strain the financial health of commercial banks.

Additionally, internal factors within individual commercial banks might have exacerbated financial distress. For instance, poor risk management practices, including inadequate credit risk assessment, overexposure to high-risk assets, and weak internal controls, could expose banks to heightened financial vulnerabilities. Moreover, mismanagement of liquidity and capital resources, coupled with inefficient cost structures, might further worsen financial difficulties during adverse economic conditions. Furthermore, regulatory and supervisory deficiencies within the banking sector might have led to the severity of financial distress. Weak regulatory oversight, lax enforcement of prudential regulations, and delays in addressing non-performing loans could perpetuate systemic risks and undermine the stability of the banking system as a whole.

This finding corroborated that of several prior studies (Ernawati et al., 2018; Laurens, & Mulyani, 2022; Shaukat, & Affandi, 2015; Sporta, 2018). Nonetheless, the finding contrasted Opler and Titman (1994), and Wruck's (1990) findings. This might have been occasioned by the differences in the economic environments of the countries considered by these prior studies, compared to the Ghanaian's economic situation.

Financial distress and ROA

The second objective examined the effect of financial distress on return on assets (ROA) of commercial banks in Ghana. The finding indicated that financial distress had a negative influence on ROA, implying that as financial distress

increased, banks' profitability, as measured by ROA, tended to decrease. This aligns with the financial distress theory, which posits that distress escalates operational and financial costs, impairing a firm's ability to generate profits (Habib et al., 2020). Specifically, distressed banks face challenges such as deteriorating asset quality, increased loan defaults, and higher provisioning for loan losses, all of which reduce ROA (Atinyo, 2022). The gambler's ruin theory further explains this dynamic, suggesting that persistent financial losses, akin to a gambler's depleting capital, heighten insolvency risk, eroding banks' capacity to leverage assets profitably (Gathoni, 2021).

Moreover, financial distress undermines investor and depositor confidence, triggering capital outflows and elevating borrowing costs, which strain banks' financial positions and limit ROA (Azizah & Lismawati, 2024). The financial distress theory supports this, highlighting how stakeholder distrust amplifies liquidity constraints. Additionally, distressed banks may adopt conservative lending practices to mitigate risks, reducing asset growth and revenue generation, as predicted by the gambler's ruin theory, where cautious strategies reflect efforts to avoid "ruin" but constrain profitability.

This finding is consistent with Sporta (2018), Ernawati et al. (2018), and Nugroho et al. (2021), who found that financial distress negatively impacts firm performance, aligning with both theories' emphasis on distress as a performance inhibitor. Mahmood et al. (2018) similarly noted that financial distress harms organizational success. However, the finding contrasts with Opler and Titman (1994) and Wruck (1990), who reported no significant link between distress and

performance, potentially overlooking bank-specific dynamics captured by the financial distress and gambler's ruin theories.

Financial distress and ROE

The third objective analysed the effect of financial distress on return on equity (ROE) of commercial banks in Ghana. The finding indicated that financial distress negatively influenced ROE, with higher distress levels leading to decreased ROE (Ayagre et al., 2024). This suggests that financial distress impairs banks' ability to generate profits relative to shareholders' equity. The financial distress theory explains this by positing that distress escalates costs and undermines stakeholder confidence, reducing profitability (Habib et al., 2020). For instance, challenges like high non-performing loans, liquidity shortages, or inadequate capital reserves increase loan write-offs and provisioning, directly lowering ROE. The gambler's ruin theory complements this, suggesting that cumulative financial losses, akin to a gambler's depleting stake, heighten insolvency risk, eroding equity returns as banks struggle to sustain profitability (Gathoni, 2021).

Several factors amplify this negative effect. First, distressed banks incur elevated costs from restructuring, regulatory penalties, or loan losses, which diminish profits and ROE, as predicted by the financial distress theory's focus on cost escalation. Second, distress signals weaknesses in operations or risk management, undermining investor confidence and shareholder value, a dynamic reinforced by the gambler's ruin theory's emphasis on declining capital bases. Additionally, distressed banks face difficulties accessing affordable funding or raising capital, further constraining ROE. This is exacerbated by eroded trust

among depositors, creditors, and investors, increasing funding costs and reducing profitability, as both theories highlight stakeholder reactions to distress amplifying financial strain.

This finding aligns with Sporta (2018) and Vo (2023), who argued that financial distress hampers financial performance, consistent with the cost and confidence mechanisms of the financial distress theory. Gathoni (2021) and Mahmood et al. (2018) similarly noted that distress erodes profitability, supporting the gambler's ruin perspective of progressive financial decline. However, Laurens and Mulyani (2022) found no significant link between distress and firm performance, possibly due to non-banking contexts less sensitive to the distress-equity dynamics captured by these theories.

Hypotheses Test Results

This section presents a summary result on the hypotheses tested. The summary is presented in Table 11.

Table 11: Summary of Hypotheses Tested, Results and Conclusions

Hypotheses	Regression result	Decision	Conclusions
1. H0: There is no statistically significant effect of financial distress on return on assets of commercial banks in Ghana.	β = -0.1824 $p < 0.05$	Rejected	Statistically significant negative effect of financial distress on return on assets

2.	H0: There is no statistically significant effect of financial distress on return on equity of commercial banks in Ghana.	β = -0.1675 $p < 0.05$	Rejected	Statistically significant negative effect of financial distress on return on equity

Source: Annual reports, 2011-2021

Chapter Summary

The chapter presented analysis and discussion of results. The results showed that the level of financial distress among commercial banks in Ghana was severe, as indicated by estimated average Altman's z-score. The relationship between financial distress and return on assets was significantly negative among the commercial banks. Similarly, the effect of financial distress on return on equity was found to be significantly negative.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The main purpose of this study was to assess the relationship between financial distress and financial performance of commercial banks in Ghana. This chapter presents the Summary, Key Findings, Conclusions, Recommendations, and Suggestions for Further Studies. While the Summary section briefly presents an overview of what has been done so far, the Key Findings section outlines the main findings of the study. Conclusions section displays the general and the specific implications or the 'take-away' of the key findings, as the Recommendations section outlines practicable policy-driven suggestions based on the key findings and the conclusions drawn thereof. Finally, the section for Suggestions for Further Studies highlights areas for consideration in further research.

Summary of the Study

Undertaking this study became relevant as the financial performance of commercial banks in Ghana has been shown to be not encouraging, even as they are considered to have contributed immensely to the country's economic growth. While the gambler's ruin and the financial distress theories argue that the level of financial distress faced by these banks may directly impact their financial performance, there is a dearth of empirical studies examining how financial distress could influence financial performance, particularly where financial performance is measured using profitability indicators of return on assets (ROA) and return on equity (ROE).

Consequently, this study assessed the relationship between financial distress and financial performance of commercial banks in Ghana, with specific focus on ROA and ROE. To achieve this, the study was employed the quantitative research approach, while striding within the explanatory design. Panel data spanning 11 years, from 2011 to 2021, was extracted from the financial reports of 22 commercial banks in Ghana. The data was analysed using the fixed effect model technique, corroborated by OLS and SGMM. Means and standard deviations were also used to show distribution of the data on each variable.

Key Findings

1. The first research objective sought to assess the level of financial distress of commercial banks in Ghana. It was found that the level of financial distress among these banks was severe.
2. The second objective was to examine the effect of financial distress on return on assets of commercial banks in Ghana. The finding indicated that financial distress had a significant negative effect on the return on assets (ROA) of commercial banks in Ghana.
3. The third objective sought to analyse the effect of financial distress on return on equity of commercial banks in Ghana. The finding signified that financial distress had a significant negative influence on the return on equity (ROE) of commercial banks in Ghana.

Conclusions

Overall, the findings were fascinating, as the assertions of the gambler's ruin and the financial distress theories regarding the relationship between financial

distress, and return on assets and return on equity were confirmed. Specifically, the study concluded that financial distress significantly and negatively influences return on assets; hence, rejection of the first null hypothesis. Similarly, it was resolved that financial distress significantly and negatively affects return on equity. These suggest that, certainly, financial distress is a precursor to unhealthy financial performance among commercial banks in Ghana. This underscores the importance of considering factors that contribute to improving financial distress, and hence financial performance. Particularly, to promote return on assets and return on equity of commercial banks, there is the need to tame the severity of financial distress experienced by the commercial banks in Ghana.

Recommendations

Based on the findings and the conclusions drawn thereof, some recommendations have been proffered.

1. Given the severe level of financial distress observed among the commercial banks in Ghana, it is imperative for these banks to enhance their risk management practices. This includes implementing robust frameworks for identifying, assessing, and mitigating financial risks such as credit risk, liquidity risk, and operational risk. The proactive management and monitoring of these risks may also help the banks withstand adverse economic conditions and mitigate the negative effect of financial distress on their return on assets and return on equity.
2. Given the significant negative effect of financial distress on the return on assets (ROA) and return on equity (ROE) of commercial banks in

Ghana, it is essential for these banks to focus on improving their capital adequacy. Maintaining adequate capital buffers can help banks absorb losses during periods of financial distress and maintain financial stability. As already being enforced by the Bank of Ghana, the commercial banks should ensure that they meet regulatory capital requirements at all times and consider raising additional capital if necessary to strengthen their financial position.

3. To mitigate the negative influence of financial distress on return on assets (ROA) and return on equity (ROE), commercial banks in Ghana should focus on enhancing diversification and resilience in their business models. This includes diversifying revenue streams, expanding into new markets or products, and adopting innovative technologies to improve efficiency and competitiveness.

Suggestions for Further Studies

Given the inherent limitations associated with reliance on secondary data, future studies could consider incorporating primary data collection methods. This approach would allow researchers to gather first-hand information from commercial banks in Ghana, thereby enhancing the accuracy and completeness of the data. For instance, if surveys, interviews, or focus groups are conducted with key stakeholders, researchers can obtain comprehensive insights into the factors leading to financial distress and its effect on financial performance. Additionally, primary data collection would provide an opportunity to explore causality

relationships and variables that might not have been adequately captured in secondary data sources used for the present study.

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