

Capital Structure and Financial Performance: Exploring the Moderating Role of CALR in Managing Risks Associated with Elevated Debt Levels.

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ABSTRACT:- This study aims to evaluate the impact of capital structure on the financial performance of banks in Ghana, using return on assets (ROA) as a proxy for financial performance and debt ratio (DEBR) as a measure of capital structure. The corporate asset-liability ratio (CALR) was introduced as an interactive variable to investigate its moderating effects on the relationship between capital structure and financial performance. The analysis was conducted using panel data collected from banks operating in Ghana from 2008 to 2020. The study applied the random effects model employing EViews statistical software to derive robust estimations. The findings indicate that DEBR has a positive and statistically significant impact on financial performance, underscoring the potential of leveraging debt to enhance profitability when managed appropriately. Conversely, CALR exhibits a direct negative and statistically significant relationship with financial performance, suggesting that an imbalance between assets and liabilities can erode profitability. Furthermore, the study reveals that CALR does not moderate the relationship between DEBR and ROA, indicating its limited role in altering the dynamics between capital structure and financial performance. These findings have practical implications for financial managers, emphasising the importance of strategically optimising debt levels to drive profitability while maintaining prudent management of asset-liability balances to mitigate associated risks. Policymakers should consider these dynamics when designing regulatory frameworks that promote sustainable financial performance in the banking sector.

Keywords: Capital Structure, Financial Performance, Debt Ratio, Corporate Asset- Liability Ratio, Banking Sector in Ghana

I. INTRODUCTION

Capital structure decisions have long been the cornerstone of corporate financial management, influencing a firm's overall risk profile and performance (Hasan & Ohee, 2024; Li, 2024). The optimal mix of debt and equity not only determines the cost of capital but also impacts the ability of firms to navigate financial risks (Sumarlan et al., 2023). While the existing literature (Ombuh et al., 2024; Al-Nimer et al., 2024; Xu, 2024; Essel, 2023) has extensively examined the relationship between capital structure and financial performance, limited attention has been paid to the mediating mechanisms that mitigate the risks associated with elevated debt levels. One such mechanism is the corporate asset-liability ratio (CALR), a metric that ensures a strategic balance between a firm's assets and liabilities. This study seeks to address this critical gap by exploring how CALR moderates the relationship between capital structure and financial performance, particularly in high-leverage scenarios.

Capital structure refers to the proportion of debt and equity used to finance a firm's operations, as conceptualised by Makrevska (2023). Financial performance, on the other hand, measures a firm's ability to efficiently utilise resources to achieve profitability, and is commonly assessed using return on equity (ROE), return on assets (ROA), and net profit margin (Ananda et al., 2023; Hartanto, 2023). The CALR acts as a key metric in managing the balance between assets and liabilities, thereby enhancing financial stability and operational resilience. While theoretical perspectives, such as the trade-off and pecking order theories, have established frameworks for capital structure decisions, empirical insights on the mediating role of CALR remain scarce. Understanding how CALR interacts with capital structure in dynamic and volatile financial environments is critical for mitigating risk and optimising performance.

Despite the robust theoretical foundation underpinning the relationship between capital structure and financial performance, empirical evidence has been inconsistent, particularly in high debt contexts. Firms with

elevated debt levels often face challenges, such as liquidity constraints, increased financial risk, and reduced profitability (Nowicki et al. 2024). However, the mechanisms by which these risks can be managed effectively remain underexplored. Specifically, the role of CALR in balancing financial risk and supporting sustainable performance under varying leverage conditions has not been fully investigated. This study addresses this research gap by focusing on the mediating impact of CALR within the capital structure-performance nexus.

To explore the role of CALR in mitigating the risks associated with elevated debt levels and its impact on the relationship between capital structure and financial performance. This study seeks to answer the following questions. (i) How does capital structure influence financial performance? ii. What is the effect of CALR on financial performance? How does CALR moderate the relationship between capital structure and financial performance?

Existing studies primarily focus on the direct relationship between capital structure and financial performance, often overlooking the dynamic role of moderating factors, such as CALR. For instance, while Kotey (2024) and Kong et al. (2023) finds a positive relationship between capital structure and profitability in Ghanaian firms, Ahmed et al. (2023) and Priatna et al. (2023) identify a negative correlation in developing economies, underscoring contextual variability. Additionally, most studies neglect how CALR mitigates the risks of excessive leverage, leaving a critical gap in the understanding of the intricate dynamics of risk management within the capital structure framework.

This study contributes to corporate finance literature by providing a comprehensive analysis of the role of CALR in managing financial risks. By integrating CALR into the capital structure-performance relationship, this study offers novel insights into risk mitigation in high-leverage scenarios. The findings can inform policymakers and corporate managers on effective strategies to enhance financial performance through robust risk management frameworks.

A firm's capital structure refers to the proportion of debt and equity utilised to finance its operations, commonly represented by the debt-to-equity ratio (Amin & Cek, 2023). Financial performance is indicative of a firm's capability to effectively deploy its resources to generate profits and is typically assessed using financial metrics such as return on assets (ROA), return on equity (ROE), and net profit margin (Ananda et al., 2024; Ananda et al., 2023). The Corporate Asset Liability Ratio (CALR) is a critical financial metric that evaluates the equilibrium between a firm's assets and liabilities, ensuring solvency while mitigating associated financial risks (Husna & Satria, 2023; Husna & Satria, 219).

By addressing the moderating role of CALR, this study bridges a significant gap in capital structure literature, particularly in the context of firms with elevated debt levels. These findings are expected to have practical implications for corporate financial strategies, offering a risk management perspective to optimise financial performance under diverse economic conditions.

II. LITERATURE REVIEW

Capital structure refers to the mixture of debt and equity that a firm uses to finance its activities (Brusov & Filatova, 2023). Optimal capital structure is critical because it determines a firm's risk, cost of capital, and overall financial stability (Demiraj et al., 2024; Mullick, 2023). According to Prekazi et al. (2023) and Essel (2023), a firm's value in a perfect market is independent of its capital structure. However, in real-world scenarios, factors such as bankruptcy risk, agency costs, and tax advantages make the capital structure an important determinant of financial performance. Debt financing, while often offering lower costs of capital owing to tax advantages, introduces financial risk that could adversely affect a firm's profitability if not properly managed (Zhang & Azman, 2023).

On the contrary, financial performance evaluates a firm's ability to generate profits relative to its revenue, assets, or equity (Bazimya & Erorita, 2024). It is commonly measured using profitability ratios such as return on assets (ROA), return on equity (ROE), and net profit margin (Hartanto, 2023). These metrics provide a comprehensive view of a firm's efficiency in utilising resources to generate value for shareholders. However, firms with high levels of debt may experience negative consequences for financial performance because of the heightened risk of insolvency or liquidity challenges (Ananda et al., 2023).

The Corporate Asset Liability Ratio (CALR) is a critical financial metric that assesses the balance between a firm's total assets and liabilities, thereby ensuring solvency and managing financial risk (Avi, 2023). CALR provides insights into a company's financial leverage and its ability to absorb shocks from external economic pressures. It plays a vital role in mitigating the risks associated with elevated debt levels, particularly for firms operating in highly competitive or volatile markets (Lv et al., 2023; Husna & Satria, 219).

Theoretical Framework

Several theories underpin the relationship between capital structure, financial performance, and the role of CALR in managing risks associated with elevated debt levels. These theories provide different perspectives on how firms make capital structure decisions and how these decisions affect performance.

The Modigliani-Miller theorem suggests that in a world without taxes, bankruptcy costs, or market imperfections, capital structure is irrelevant to a firm's value. However, when market imperfections such as taxes and bankruptcy risks are introduced, capital structure can influence both the firm's risk and return (Brusov et al., 2021). This theory is relevant for understanding how CALR can be used as a strategic tool to manage the trade-off between debt and equity financing in mitigating financial risks, particularly when debt levels increase. The trade-off Theory posits that firms balance the benefits of debt financing, such as tax shields, with the costs of financial distress (Brusov et al., 2023). In high-debt firms, CALR plays an important role in ensuring that the risks associated with leverage are managed to avoid insolvency. This theory suggests that a firm's financial performance can be optimised when the right level of debt is chosen to minimise the costs of financial distress while maximising tax benefits (Esghaier 2024). The CALR provides a practical mechanism for managing these risks by assessing and balancing a firm's assets and liabilities.

Pecking Order Theory argues that firms prioritise their sources of financing based on the principle of least effort, preferring internal financing, debt, and equity (Yıldırım & Çelik, 2021). Firms with high levels of debt may rely on CALR to avoid further debt accumulation, thereby managing the risk of excessive leverage. This theory is important for understanding why firms might use CALR to maintain a balance between debt and equity financing, thus ensuring that financial performance remains stable.

While these theories provide important insights into capital structure decisions, they are not without limitations. For instance, the Modigliani-Miller proposition assumes perfect market conditions, which are rarely observed in the real world. Trade-Off Theory, while offering a more nuanced perspective, does not fully account for the dynamic nature of capital structure decisions in changing economic environments. The Pecking Order Theory emphasises the role of financing preferences, but does not consider how external market factors, such as interest rates or economic cycles, influence financing choices. Moreover, although these theories emphasise the role of debt in financial performance, they often overlook the mediating role of CALR in risk management. There is limited empirical evidence on how CALR interacts with capital structure decisions to influence financial performance, particularly under elevated debt levels.

Empirical Review

Several studies have examined the relationship between capital structure and financial performance, with varying conclusions, depending on the context and methodology used. For instance, Kotey (2024) conducted a study of Ghanaian firms and found a positive relationship between debt financing and profitability, suggesting that capital structure decisions significantly affect financial performance. However, Priatna et al. (2023) observed a negative relationship between debt and profitability in Jordanian firms, highlighting the potential risks associated with high leverage.

Amin and Çek (2024) found that capital structure, specifically the debt-to-equity ratio, has a significant impact on firms' financial performance. Similarly, Parkhi et al. (2023) confirmed that excessive debt negatively affects firm performance, particularly when firms do not utilise financial ratios such as CALR to manage leverage. These studies indicate that while debt financing can be beneficial in some contexts, the lack of effective risk management strategies, such as CALR, can undermine financial performance.

The methodology employed by these studies generally involves regression analysis to examine the relationship between capital structure and financial performance. The findings have been mixed, with some studies showing a positive relationship between debt and profitability and others indicating a negative or neutral relationship, depending on the context and market conditions. This study employed a panel data analysis technique.

The role of CALR in managing the risks associated with elevated debt levels and its impact on financial performance has not been fully explored in the existing literature. Theories such as Trade-Off Theory and Pecking Order Theory offer useful frameworks for understanding how firms balance the risks and rewards of debt financing. However, these theories often overlook the critical mediating role of CALR in managing financial risk. Empirical evidence also presents mixed results, with studies indicating both positive and negative relationships between debt levels and financial performance. This study aims to fill this gap by focusing on the interaction between capital structure, CALR, and financial performance, providing valuable insights for firms seeking to optimise their capital structure while managing risk.

III. METHODOLOGY

This study explores the relationship between capital structure, financial performance, and the role of Corporate Asset Liability Ratio (CALR) in managing the risks associated with elevated debt levels. To achieve this objective, a quantitative research design was employed using time-series data from 2008 to 2020 for nine listed banks on the Ghana Stock Exchange (GSE). Time-series data allows for the analysis of variables over a period, providing insights into the trends and patterns of capital structure and its effects on financial performance, particularly in the context of high debt levels.

This study adopts a descriptive and correlational research design to identify and examine the relationships between capital structure (debt-to-equity ratio), financial performance (ROA, ROE, and net profit margin), and CALR. This design is suitable for examining how changes in debt levels influence financial performance over time, and how CALR acts as a moderating variable in this dynamic. The focus is on nine publicly listed banks in Ghana, as they provide a representative sample of the banking sector, allowing for a robust analysis of the financial implications of capital structure choices in a developing economy.

The data for this study will be collected from secondary sources, primarily the annual financial statements of the nine listed banks, which will be accessed through their official websites and the Ghana Stock Exchange database. This study utilises several key variables to analyse the relationships between capital structure, financial performance, and Corporate Asset Liability Ratio (CALR). First, capital structure is assessed using the debt-to-equity ratio, which is calculated by dividing total liabilities by shareholders' equity. This ratio provides insights into the extent to which each bank relies on debt financing rather than equity capital. Second, financial performance is evaluated using commonly used profitability indicators, including Return on Assets (ROA), Return on Equity (ROE), and net profit margin. These metrics are standard in financial analysis and serve to measure banks' efficiency in generating profit relative to their assets, equity, and overall revenue. Lastly, the Corporate Asset Liability Ratio (CALR) is incorporated to examine the balance between banks' assets and liabilities. This ratio is crucial for understanding banks' financial stability and risk-management strategies. The data for CALR are sourced directly from banks' financial statements, as reported in their annual disclosures. This study employs econometric techniques to analyse time-series data. Specifically, panel data regression analysis was conducted to explore the relationships between capital structure, CALR, and financial performance. Fixed-effects or random-effects models were tested to determine the most suitable approach for capturing the effects of independent variables on financial performance, considering both time and individual bank variations. Additionally, diagnostic tests for multicollinearity, heteroscedasticity, and autocorrelation were performed to ensure the robustness of the regression results. All statistical analyses were conducted using Eviews, software widely used for econometric analysis in financial research.

IV. PRESENTATION OF RESULTS.

4.1 Descriptive Statistics

The descriptive statistics shown in Table 1 provide a thorough overview of the main factors examined in the research, shedding light on their central tendencies, variability, and possible effects on risk management and financial performance. The typical value of 3.93% is found in the Return on Assets (ROA), a crucial profitability metric that assesses how well a bank uses its assets to produce profits. This finding suggests that listed banks often provide small returns on their assets. Peak operational efficiency is represented by a maximum ROA of 9.24%, whereas instances of negative profitability are revealed by a minimum ROA of -4.69%, which may be related to operational difficulties or outside economic pressures.

The mean value of a bank's debt ratio (DEBR), which is the ratio of total liabilities to total assets, is 8.11%. This finding implies a somewhat cautious approach to leverage by the banks under investigation. However, the lowest value of 0.1% indicates that certain organisations use debt financing very little, while the largest value of 39.57% indicates that some institutions rely more heavily on debt, suggesting aggressive financing tactics.

The average value of the Corporate Asset Liability Ratio (CALR), which gauges how well a bank's assets and liabilities line, is 29.61%. The minimal value of 0.1% raises concerns about possible misalignment and liquidity problems in some situations, while the greatest value of 86.91% indicates strong financial stability and risk management in others. These figures highlight how different the sample's financial performance and practices are from one another.

Table 1 Descriptive Statistics

	ROA	DEBR	CALR
Mean	0.039358	0.081081	0.296169
Median	0.040099	0.046212	0.246469
Maximum	0.092417	0.395725	0.869182
Minimum	-0.046949	0.001257	0.001871
Std. Dev.	0.024689	0.084925	0.205905
Skewness	-0.332810	1.583867	0.645727
Kurtosis	3.659461	5.073926	2.472391
Observations	182	182	182

Source: Authors own estimation

Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests were used in this study to assess the stationarity of the dataset and guarantee the reliability of any further time series studies. For both the ADF and PP tests, the findings in Table 2 show that every variable is statistically significant at their values. By confirming that there are no unit roots, this result suggests that the data series are stationary in their initial configuration. The reliability of the calculated correlations between capital structure, financial performance, and CALR is improved by the stationarity of the variables, which eliminates the possibility of incorrect regression findings.

Table 2 Results of Unit Root tests with ADF and P.P.

Variables	Augmented Dickey-Fuller (ADF)		Phillips-Perron (P.P.)	
	Level	P. Value	Level	P. Value
ROA	57.0061	0.0010	63.3414	0.0001
DEBTR	51.5189	0.0044	82.1499	0.0000
CALR	48.1438	0.0103	62.7857	0.0002

Source: Authors own estimation

4.2 Regression Analysis

The study uses panel data from 14 Ghanaian banks and estimates the correlations between the variables using the random-effects model. The Hausman test was used to validate the selection of the random-effects model, and the results are shown in Table 3. The Hausman test showed no significant association between the explanatory variables and individual-specific effects, confirming the suitability of the random effects method. This guarantees that the model is suitable and robust for capturing both cross-sectional and time-series variations, allowing for a more in-depth examination of the relationships among financial performance, capital structure, and the Corporate Asset Liability Ratio (CALR).

Table 3 Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.948548	3	0.3996

Source: Authors own estimation

Table 4 Regression Analysis Result

Independent Variable	Dependent Variables
DEBR	0.220548*** (0.068242)
CALR	-0.058619*** (0.016863)
CALDEBT	-0.137814 (0.086122)
C	0.044280*** (0.005521)
R-squared	0.090480
F-statistic	5.902568
Prob(F-statistic)	0.000731
Durbin-Watson stat	1.011682

Source: Authors own estimation

To examine the relationship between capital structure, Corporate Asset Liability Ratio (CALR), and financial performance in the banking industry, this study examines three main research questions. The first investigates whether capital structure, as shown by the debt-to-asset ratio (DEBR), affects return on assets (ROA), a metric used to quantify financial performance. With a coefficient of 0.2205, the results in Table 4 show that DEBR has a positive and statistically significant impact on ROA at the 1% significance level. According to this study, ROA rises by 22.05% for every 1% increase in DEBR. According to the positive impact, more leverage within the banks under study boosts profitability, most likely because of the efficient use

of debt to increase asset returns. This is in line with ideas that contend that, provided the cost of debt is manageable, ideal debt levels can act as a financial leverage mechanism to optimise profits.

The second research question assesses how CALR directly affects financial performance. Table 4 shows that with a coefficient of -0.0586, CALR has a statistically significant negative impact on ROA. This means that a 5.86% decrease in ROA occurs for every 1% increase in the CALR. The inverse correlation draws attention to possible inefficiencies linked to elevated CALR levels, which could indicate an excessively cautious asset-liability ratio, thus impeding revenue-generating operations or profitability. This study highlights the importance of efficient asset liability management for preserving financial stability and maximising performance. Additionally, this implies that banks with lower CALR ratios are in a better position to maximise returns through the efficient use of assets.

The third question investigates whether the CALR influences the correlation between DEBR and ROA. According to the data in Table 4, the interaction term between CALR and DEBR has a coefficient of -0.1378 and is not statistically significant. This implies that the relationship between the debt ratio and financial performance is not significantly moderated by CALR. Although CALR is a substantial independent variable, it may not have a major impact on how the debt ratio affects ROA, as evidenced by the lack of statistical significance. This result may indicate the complex influence of other variables not included in the model, or it may be explained by the idea that the dynamics of CALR function independently of leverage when determining profitability.

However, these findings offer insightful information on the banking industry's financial dynamics. They stress the value of capital structure in raising profitability, stress the necessity of closely monitoring asset-liability balances, and imply that CALR plays a largely direct role rather than an interactive one. These results add to the more sophisticated knowledge of how performance outcomes in Ghana's banking sector are shaped by the interaction of financial indicators.

V. DISCUSSION

The findings of this study provide significant insights into the dynamics of capital structure, the Corporate Asset Liability Ratio (CALR), and financial performance in the banking sector. The positive and statistically significant effect of the debt ratio (DEBR) on return on assets (ROA), with a coefficient of 0.2205, aligns with several previous studies that highlight the benefits of leveraging debt to enhance profitability. For instance, Austin et al. (2019) and Attaoui et al. (2021) argued that optimal debt levels can serve as a financial leverage tool, increasing returns for equity holders when the cost of debt is lower than the returns generated by assets. Similarly, Al-Janabi (2024) finds that moderate levels of debt can enhance firms' profitability, supporting the notion that debt capital, when effectively managed, positively contributes to financial performance.

However, the negative and statistically significant impact of CALR on ROA, with a coefficient of -0.0586, diverges from prior studies that highlight the role of asset-liability management in stabilising performance. While effective CALR management is often associated with mitigating risks and ensuring solvency (Chen & Zhou, 2019), the present findings suggest that an excessive focus on maintaining a high CALR may limit profitability by tying up resources in non-productive assets. This result aligns with the empirical observations of St-Hilaire (2019), who suggested that over-conservative balance sheet management might reduce operational efficiency and financial returns.

The lack of a statistically significant moderating effect of CALR on the relationship between DEBR and ROA, indicated by a coefficient of -0.1378, presents an interesting deviation from the theoretical expectations. Contrary to studies such as those by Ima et al. (2024), which propose that effective asset-liability management enhances the impact of leverage on performance, the findings here suggest that CALR operates independently, rather than amplifying or dampening the effect of debt. This discrepancy may be attributed to context-specific factors, such as regulatory constraints or market conditions in the Ghanaian banking sector, which warrant further investigation.

In addition, while the findings confirm the critical role of debt in driving profitability, they highlight the complexities surrounding CALR's impact of CALR on financial performance and its interaction with leverage. These results contribute to the ongoing discourse on optimising capital structures and balance sheet management in emerging markets.

VI. CONCLUSION

The findings of this study offer critical insights into the relationship between capital structure, Corporate Asset Liability Ratio (CALR), and financial performance in the banking sector. This evidence demonstrates that an optimal debt ratio positively influences financial performance, reinforcing the strategic importance of leveraging debt within manageable thresholds to enhance profitability. This outcome underscores the potential of capital structure decisions to drive value creation when effectively managed.

Conversely, the study highlights the negative impact of CALR on financial performance, suggesting that excessive focus on the asset-liability balance can constrain profitability. While CALR is an essential metric for managing solvency and mitigating risk, its adverse effect on performance underscores the need for banks to strike a balance between risk mitigation and profitability optimisation. This finding challenges the assumption that higher CALR ratios inherently translate into better financial health.

Moreover, this study reveals that CALR does not moderate the relationship between debt ratio and financial performance, indicating that its influence operates independently of leverage decisions. This result highlights the complexity of financial management in the banking sector and suggests that other factors such as market dynamics and regulatory conditions may play a more significant role. These findings provide valuable insights for financial managers and policymakers for optimising strategies to balance risk, leverage, and profitability in the banking industry.

Theoretical Contribution

The findings contribute significantly to the theoretical discourse by validating and extending the applicability of the Trade-Off Theory and the Agency Cost Theory within the banking sector. The positive relationship between debt ratio (DEBR) and financial performance aligns with Trade-Off Theory, suggesting that banks can optimise their capital structure by leveraging debt to benefit from tax shields and enhance profitability. Conversely, the negative effect of CALR on financial performance reflects the perspective of the Agency Cost Theory, where excessive risk aversion or misaligned priorities between stakeholders may hinder profitability. Furthermore, the non-significant moderating role of CALR highlights the complexity of risk management frameworks, suggesting limitations in their moderating effects on dynamic capital structures.

Practical and Policy Implication

The findings provide practical implications for financial managers, emphasising the strategic use of debt to enhance profitability while carefully monitoring corporate asset-liability ratios to mitigate risks. Policymakers should promote regulatory frameworks that encourage optimal capital structure management and balance leverage and risk to ensure sustainable financial performance in the banking sector.

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